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BRITISH ENTOMOLOGY;

BEING

ILLUSTRATIONS AND DESCRIPTIONS

OF

THE GENERA OF INSECTS

FOUND IN

GREAT BRITAIN AND IRELAND:

CONTAINING

Coloured Figures from Nature

OF THE MOST RARE AND BEAUTIFUL SPECIES, AND IN
MANY INSTANCES OF THE PLANTS UPON WHICH
THEY ARE FOUND.

BY

JOHN CURTIS,

FELLOW OF THE LINNEAN SOCIETY.

VOL. II.

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IS DEDICATED,

IN TESTIMONY OF THE SINCERE REGARD AND RESPECT OF

THE AUTHOR.

London, Jan. 1, 1825.

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20 8 <i>for articulated read</i> pedicled.	53 24 <i>for longest read</i> shortest.
23 <i>for</i> Siagonum <i>read</i> Siagonium.	25 <i>for</i> shortest <i>read</i> longest.
*46a 11 <i>for</i> albiges <i>read</i> albiceps.	*53a 18 <i>for</i> Millard <i>read</i> Miller.
47 17 <i>for</i> 3-jointed <i>read</i> 2-jointed, 1st joint	56a 23 <i>after</i> abdomen <i>add</i> and simple antennæ.
clavate, 2nd attenuated; external	70 24 <i>for</i> articulated <i>read</i> pedicled.
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48 24 <i>omit</i> sometimes tuberculated.	87 28 <i>for</i> neck <i>read</i> contracted base of the
28 <i>for</i> n. 11 <i>read</i> n. 8.	abdomen.
50 13 <i>for</i> (2* 9) <i>read</i> (2* g).	87a 1 <i>for</i> neck <i>read</i> contracted base of the
	abdomen.
	88a <i>Geometra tanageria</i> Hüb. belongs to
	this genus.

Obs.—A new title-page is now given for Vol. I. and a new leaf for Folio 63.

For an explanation of the terms used in this Work, the reader is referred to Samouelle's Useful Compendium, Stewart's Elements of Natural History, and the forthcoming volumes of Kirby and Spence's Introduction to Entomology.

Purchasers are recommended to have their volumes put in Boards only, until the work is completed, when a Systematic Arrangement of the whole will be given.

Binders are requested on no account to beat the Volume until it has been published a sufficient time to prevent the ink being transferred by pressure.

* Wherever the letter a follows the number of the Folio, it indicates a reference to the second page of that Folio.

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PLATYPUS CYLINDRUS.

ORDER Coleoptera. FAM. Bostricini *Lat.* Bostricidæ *Leach.*

Type of the Genus *Platypus cylindrus* *Herbst.*

PLATYPUS *Herbst, Lat.* *Bostrichus* *Fab.* *Scolytus* *Oliv., Panz.*

Antennæ inserted close to the base of the clypeus, not longer than the head, 6-jointed, 1st joint elongate, curved; 2nd short, thick; 3rd and 2 following transverse, club large solid oval very much compressed punctured, annulations none or obsolete. (f. 6.)

Labrum none?

Mandibles exerted trigonate very strong acute (2.)

Maxillæ broad at the base, attenuated upwards, somewhat acute at the apex, which produces strong bristles as well as the internal edge: *Palpi* short robust 3-jointed conic, terminal joint short. (3.)

Mentum very small oblong, narrowed at the base (4. a.), where it appears to be attached to the surface, not the edge, of the covering of the underside of the head (b.): *Palpi* very short 3-jointed, the terminal joint being the longest (c.)

Head globose very obtuse before, appearing vertical. Eyes ovate.

Thorax long cylindric, excavated on the sides to receive the anterior femora. Body cylindric linear. Elytra truncated at the apex and very hairy, with a small tooth on the 3rd stria, and an obtuse spine on each side near the external margin behind. Legs long, anterior the longest curved inward, posterior placed very far behind; anterior coxæ very large. Thighs robust. Tibiæ short compressed tuberculated, anterior deeply striated transversely on the outside, terminated by a strong spine. Tarsi slender, entire, longer than the femora and tibia united, 5-jointed, 1st joint very long, 4th very minute. Claws slender (5. a fore leg).

CYLINDRUS *Herbst* *Coleop.* 5. tab. 49. f. 3. *Fab. Ent. Syst.* t. 1. pars 2. p. 364. n. 2. *Cylindricus* *Oliv. Ent.* t. 4. n. 78. pl. 1. fig. 2. a. b. *Lat. Gen. Crust. &c.* t. 2. p. 277.

Shining reddish-brown: head, thorax and elytra towards the apex inclining to black. Legs castaneous. Antennæ ferruginous. Head punctured, flat and finely rugulose in front. Thorax slightly punctured, back smooth, with an impressed line in the centre behind, posterior margin produced in the centre. Elytra punctured, with 8 deep striæ, forming as many alternate elevated ribs. Anterior thighs towards the base angulated on the internal margin.

In the Author's and other Cabinets.

THIS curious insect, so different in appearance to any of its congeners, belongs to the same family as *Scolytus destructor*

(Plate 43). I have adopted Herbst's name *cyllindrus* after Dejean, who has applied the name *cyllindricus* to a North American species.—Before I proceed further I shall notice its peculiarities. Most insects that live under bark, either have moderately long or very short legs; but in our insect the tarsi, which are 5-jointed, are remarkable for their length, being twice as long as the whole remainder of the leg; the coxæ of the anterior pair are very powerful, and this pair has a singular appearance, being bowed outward so as to form nearly a circle when viewed in front; the transverse furrows upon the tibiae of this pair are very peculiar characters, and must materially assist the insect in its course through its narrow labyrinth beneath the bark.

It is to the assiduity of Mr. D. Bydder that we are enabled to record it in our British Fauna: the specimens in my own as well as all other cabinets, are from the large stock which he once took in the New Forest under the bark of felled oak and beech trees in the month of May. Although it must be upwards of twelve years since that capture was made, and the insect has been sought for since, I have never heard of a single other specimen having been taken. This, however, is only additional evidence to a well known fact, that myriads of Xylophagous insects may be found in one tree, whilst others close to the spot will be untouched, or affected in so slight a degree as to prevent discovery. There is nothing perhaps in nature more wonderful than the sudden appearance and disappearance of these minor works of the Creator, which are at His command called forth to answer ends that our limited understandings cannot comprehend, and which being accomplished, are, by a combination of circumstances no less wonderful, swept away from us altogether for a season.

All the trees of this country occasionally suffer, and some of them materially, from the attacks of insects. As it therefore becomes of great importance that we should be acquainted with them; I shall, whenever I arrive at the illustration of such genera, point out their peculiar habits. I regret that in the present instance I can find no account, in any of the works with which I am acquainted, of the economy of our insect; and if it were known, we no doubt should have been fully informed upon the subject in the invaluable works of the learned Latreille.

Geranium pratense (Meadow Crane's Bill) is figured in the plate.

ONTHOPHAGUS TAURUS.

ORDER Coleoptera. FAM. Coprophagi *Lat.* Copridæ *Leach.*

Type of the Genus Scarabæus nuchicornis *Linn.*

ONTHOPHAGUS *Lat.* Scarabæus *Linn., Fab.* Copris *Fab.*

Antennæ inserted under the clypeus between the eyes and the base of the maxillæ, 9-jointed, 1st joint long cylindric, 2nd globose, 4 following smooth coriaceous, short, last transverse, to which is closely attached an abrupt lamellated mass of 3 joints, very pubescent. (f. 6.)

Labrum concealed by the clypeus, membranaceous more coriaceous at the base and down the centre, quadrate, ciliated. (1.)

Mandibles elongated rounded, entire, corneous at the base, membranaceous towards the apex, beautifully ciliated on the internal edge. (2.)

Maxillæ crustaceous, terminated by a large membranaceous ciliated lobe: *Palpi* without hairs, 4-jointed, 1st joint slender, 2nd and 3rd short, more robust, 4th attenuated at each end, truncated. (3.)

Mentum quadrangular, narrowed before and behind, hirsute: *Palpi* very hairy, 2-jointed, 1st joint viewed in profile obovate, abruptly produced on the upper side, 2nd joint securiform, obliquely truncated. *Lip* small bilobed concealed by the palpi. (4.)

Head generally furnished with horns in the males. *Clypeus* large, entire, somewhat semicircular, nearly concealing the eyes. Thorax broad, as long or longer than the elytra, emarginate before, rounded behind. Scutellum none. Wings 2. Posterior feet placed very far behind. Anterior tibiæ the largest, strongly dentated externally, with a spine at the interior angle, 4 posterior tibiæ with 2 spines at their apex. Tarsi 5-jointed, terminated by simple claws (5. a fore leg.)

TAURUS *Linn. Syst. Nat.* 2. 547. 26. *Fab. Ent. Syst. t.* 1. pars 1. p. 54. n. 178.

Male black, glossy, hairy beneath. Clypeus punctured more thickly towards the anterior margin where it curves upward, from the posterior part of the head arise 2 long curved spreading horns, the internal edges of which unite at the base and form a transverse line. (fig. 7.) Thorax sometimes tinged with rosy and green colours, thinly punctured, smooth before, where it is depressed in the centre, with 2 other depressed lateral lines appearing like the impressions of the horns upon the head. Elytra with seven punctured striæ on each, besides the margin; slightly pubescent towards their apex in perfect specimens. Legs hairy. Tarsi and base of antennæ ferruginous.—*Female* similar to the male excepting the head, which has no horns but a transverse elevated line behind the eyes where the horns arise in the male, and another transverse line just before the centre. (fig. 8.)

In the Cabinet of Mr. Stone.

THIS very natural group, separated from Fabricius's genus *Copris* by Latreille, and named *Onthophagus* from its peculiar habits of life, contains the following British species : 1. *O. Taurus* L.; 2. *Vacca* L.; 3. *Austriacus* Panz.; 4. *Cænobita* F.; 5. *Dillwynii* Leach.; 6. *nuchicornis* L.; 7. *nutans* F.; 8. *ovatus* L. They inhabit the excrement of animals, especially the cow, during the spring and summer, and when the season is warm and favourable so early as April; they are by no means rare, excepting *O. Vacca*, which is found in the meadows about Battersea and in Epping Forest; *O. Dillwynii*, which was taken at Swansea by L. W. Dillwyn, Esq. (in honour of whom it was named by Dr. Leach,); and *O. Taurus*, a male of which was taken by a collector October 1, 1824, by the side of the New Park near Brockenhurst in the New Forest, Hampshire. It is more than probable that any one finding the female of *O. Taurus* in this country, without being aware of its inhabiting Britain, would have taken it for *O. nutans*: the collector who took the specimen figured, was directed by Mr. Stone, to whom it was sent, to search diligently for more, but not another could be found; it was far beyond the period for this genus, as a fine April or May is the right time for them; and there is little doubt that if any one could go to the same spot at that season, he would be rewarded by finding other specimens.

The horns upon the head of the male, which certainly very much resemble those of a bull (as exhibited in the coloured figure), and the front view of the head (fig. 7.) are a very strong feature to distinguish that sex by: the female, having only two elevated transverse lines upon the head (as exhibited at fig. 8.), is rendered far less striking. This last figure was drawn from a specimen in the British Museum: it is by no means an uncommon insect upon the continent. I have a male from Germany; and it is even found so near to us as Paris; but it does not appear to be an inhabitant of the colder regions, as Gyllenhal and other writers upon Northern entomology do not describe it in their works. Pliny, who was acquainted with our insect, compares it to a *Tick*.

The plant figured is *Achillea Ptarmica* (Sneeze Wort Yarrow).



Handwritten text, likely a title or description, mostly illegible due to fading.

ÆGERIA ICHNEUMONIFORMIS.

The Six-belted Clear-wing.

ORDER Lepidoptera. FAM. Zygænides *Lat.* Zygænidae *Leach.*

Type of the Genus Sphinx culiciformis *Linn.*

ÆGERIA *Fab., Leach.* Sesia *Fab., Lat., Lasp.* Trochilium *Scop.*
Sphinx *Linn.*

Antennæ composed of numerous joints (about 30), 1st large, cylindric, following short; very slender at the base, gradually increasing in size nearly to the apex, which is terminated by a small slender joint, from which arises a tuft or plume (fig. 1.); covered with scales and strongly ciliated in the males. (2.)

Labrum and } attached to the clypeus.
Mandibles

Maxillæ long, slender, spiral.

Labial Palpi longer than the head, divaricating (7. a.) acuminate reflexed, thickly covered with scales and long hairs, the terminal joint being less clothed than the rest (4.); 3-jointed, 1st joint small, 2nd long, slightly attenuated, 3rd shorter than the 2nd, and more slender, attenuated. (4. a.)

Clypeus convex covered with close flat scales. *Eyes* distant. *Ocelli* 2, placed near to the eyes on the crown of the head (7. b.) *Abdomen* cylindric, composed of 8 segments, terminated by a beard more or less developed, trilobed. *Feet*, anterior the longest, posterior the shortest. *Tibiæ* spined. *Tarsi* 5-jointed, terminal joint with very minute claws. *Wings* generally transparent, strongly ciliated.

ICHNEUMONIFORMIS *Fab. Ent. Syst. t. 3. pars 1. p. 385. n. 22.* *Laspeyres' Sesia Europææ*, p. 16. n. 9. f. 3. & 4. *Vespiiformis* *Haw. Lep. Brit. p. 70. n. 23.*

Greenish black. *Antennæ* towards the centre above ochraceous, furruginous beneath, except 2 or 3 joints at the base and a portion of the apex which are black. *Clypeus*, posterior margin of head, 2 spots at the base of the wings, sides of the thorax, 5 or 6 bands across the abdomen at nearly equal distances, and 2 longitudinal tufts at the apex yellow. *Palpi* and legs orange, the former having a few blackish scales; the latter with the thighs, base of tibiæ and a spot near their extremities black. *Wings* transparent; the costal margin, a lunulated spot near the disk, ciliæ and margin of wings, nerves and a triangular spot on the margin of the inferior wings, orange-brown; posterior margin and apex of superior wings orange, the centre of the latter being transparent. The male differs from the female in having a more slender body with 7 bands; antennæ above with a very small portion of the centre pale ochraceous.

In the Cabinets of Mr. Haworth and the Author.

THE species composing the genus *Algeria* having been long confounded, I shall here endeavour to settle their names and synonyms to the best of my ability, in which I have been much assisted by Laspeyres's valuable *Monograph* upon the genus.

1. *Æ. Asiliformis* F.; *Æstriformis* Kirby and Spence's Int. to Ent. vol. 1. pl. 3. f. 2. (this species having opaque superior wings will form a division).—2. *Spheciformis* F.—3. *Ichneumoniformis* F. (tab. 53. Nob.); *Vespiformis* Haw.—4. *Vespiformis* L. mas.: *Tenthrediniformis* Hub.; *Cynipiformis* Haw. fem.: *Æstriformis* Haw.; *chrysorrhœa* Don. v. 4. t. 116.—5. *Chrysidiformis* Vill., Haw.—6. *Tipuliformis* L., Haw., Don. v. 2. t. 52.—7. *Formiciformis* Esper., Vill., Lasp., Haw.—8. *Mutillæformis* Lasp.; *Culiciformis* Hub., Haw.; *zonata* Don. v. 6. t. 195.—9. *Culiciformis* L., Lasp.; *Stomoxiformis* Hub.?

Algeria Ichneumoniformis is one of the rarest of our British species; and it is a little singular that all the specimens I have yet examined have been females. It appears to be attached to the coast—Mr. Millard having taken one near Bristol; Mr. Skrimshire took one at Creak near the coast of Norfolk 1823; and the beginning of September of the same year I captured a female resting upon a large mass of rock on the beach near Hastings. Although there is no appearance of yellow hairs in the beard of the abdomen in Laspeyres's figures, he mentions a few in his description;—it is only in the most perfect specimens that they are very evident: the yellow bands of the abdomen also in wasted specimens become nearly white, and the orange legs yellow; which will reconcile in a great measure the differences in Fabricius's and other descriptions; and there are evident proofs throughout Laspeyres's accurate description of its being taken from a faded and worn specimen.

The most singular characters of our genus are the *ocelli* or little eyes, which although common to the orders Trichoptera, Neuroptera, Hymenoptera and Diptera, one would not expect to find amongst the Lepidoptera: it is to the accurate and learned De Geer that we are indebted for this discovery. Savigny long since proved an analogy between the Lepidoptera and the Trichoptera, from a resemblance in the form and situation of the labrum and mandibles: and in the ocelli we have another proof of their affinity; for not only are they placed very much in the same situation, but they agree also in number, being only two; whereas in the other orders there are three, placed more or less triangularly.

The larvæ have sixteen feet, are pale and fleshy; they live upon the bark, pith and internal substance of trees, amongst which are the poplar, willow, alder, and currant: the imago delights to fly in the sunshine between the hours of nine and three during the months of May, June and July, at which time they are very lively and fly with wonderful velocity, alighting upon flowers from which they extract honey.

Eryngium maritimum (Sea Eryngo, or Sea Holly) is figured.





LOPHYRUS PINI.

ORDER Hymenoptera. FAM. Tenthredinidæ Lat., Leach.

Type of the Genus Tenthredo Pini Linn.

LOPHYRUS Lat., Leach. Tenthredo Linn., Fab. Hylotoma Fab.

Pteronus Jur.

Antennæ inserted near the middle of the face, somewhat approximating, not longer than the thorax, pubescent; male with about 22 joints, all of which are bipectinated, except the first 2 and terminal joints (f. 1.); female thickest in the middle, slightly serrated internally, having from 16 to 18 joints (1. a.)

Labrum nearly quadrate narrowed anteriorly, ciliated. (2.)

Mandibles, one tridentate (3.), the other with a small tooth only.

Maxillæ with 2 long lobes, the interior one somewhat acuminate, membranaceous, as long as the external one, which is rounded and hairy: *Palpi* long slightly hairy 6-jointed, 1st and 2nd joints short, the following long, the 2 last being more slender. (4.)

Mentum quadrate, slightly dilated anteriorly (5. a.): *Palpi* hairy, 4-jointed, of nearly equal length, gradually increasing in breadth to the last which is somewhat ovate acuminate (b.):

Lip tripartite, the lobes of nearly equal size. (c.)

Head in the males very broad. Ocelli nearly in a transverse line.

Thorax in the males large. Abdomen sessile, somewhat cylindric in the males, depressed and ovate in the females. Oviduct not exerted, composed of 2 lamellæ which are serrated. Superior wings with 1 marginal and 4 sub-marginal cells, the nerve dividing the 1st and 2nd cells being imperfect. Tibiæ with spurs. Tarsi 5-jointed, first 4 joints with membranaceous appendages, 1st joint very robust, the following gradually decreasing in size to the apex, which is terminated by claws slightly unidentate (8. a fore leg.)

Larva with 6 pectoral and 16 membranaceous feet.

PINI mas. Linn. Syst. Nat. 2. 922. 14.—Fab. Ent. Syst. v. 2. p. 112. n. 28.—fem. T. dorsata Fab. v. 2. p. 111. n. 26.

Male black, head and thorax minutely punctured. Palpi, tibiæ and tarsi pale ochraceous. Stigma large, furruginous. Wings slightly discoloured with fuscous. Antennæ with 22 joints. Female larger than the male, pale ochraceous. Head, antennæ (excepting the 1st joint) a spot before the centre and a lunulated mark on each side the thorax black, margin to 1st segment 4th and 3 following segments, excepting the sides, a mark on the centre of the 8th and the apex of the abdomen also black. Legs pale varied with fuscous. Wings pale ochraceous, stigma large ferruginous. Antennæ with 18 joints: Some specimens have more and others less black.

In the Cabinet of the British Museum.

WE have only three British species of this pretty genus of Latreille's, which rival even the Lepidoptera in the beauty of their antennæ; and nature, guided by the same principle, has bestowed this ornament alike in both orders upon the males, which still further involves in mystery their use and quality; since if form were material, the power of one sex would either be very different or very superior to that of the other;—if the sense of feeling indeed be the only faculty they possess, their form is not of so much importance; and like Lehmann we shall be inclined to adopt this opinion, if we consider their general situation, their corrected attitude when in action, and still more the uses to which they are applied.

Lophyrus Pini is a rare insect in Britain: the female has been taken in Derbyshire, but the pine forests of Scotland are the most productive places for them: *L. pallidus* of Leach was found in the larva state by that gentleman at Oban in Scotland, upon *Pinus sylvestris*. (Pl. 7.) On the 6th of September they spun cocoons, on the 14th of June following one female hatched. *L. rufus* Klug. is not uncommon in the same country, and is also occasionally met with at Birchwood. June appears to be the month in which all the species are found in the imago state, and the males are by far the rarest; that of *L. pallidus* is unknown, and I have seen but one British male of *L. Pini*.

De Geer devotes the whole of tab. 36. vol. 2. to the illustration of *L. Pini*; and his history of it at p. 971 is not less interesting. The larvæ (says that author) are gregarious, of an obscure ochre colour with a row of large black spots down the side, when full-grown with another row down the back: they assemble in July upon the branches of the pine in large troops of more than a hundred; they commonly repose along the leaves, having their heads inclined on one side; they are very voracious, not only devouring the straight leaves of the pine, beginning at the end as one eats a radish, but also the bark of the young shoots; and after having despoiled one branch of its leaves, they go in a body and fix upon another, until so many branches are stripped that their habitation becomes conspicuous. When touched they raise their heads and let flow from their mouths a drop of clear resin, which has the scent and consistence of that exuding from a wounded branch of the pine. In every state the sexes may be known by their size; even the cocoons which are fixed to the branches of the pine are much smaller in the males than the females; the larvæ form cocoons about September, but they do not change to pupæ until the spring; and one of Dr. Leach's caterpillars of *L. pallidus* remained two years in that state without nourishment, which could not happen if they were not perfectly secluded from the air: the males bred by De Geer appeared in May,—the females did not hatch till June.

Lychnis dioica mas. var. *alba* (White Champion) is figured.



Drawn by J. Curtis. London Feb 1825

MELASIS BUPRESTOIDES.

ORDER Coleoptera. FAM. Sternoxi Lat. Buprestidæ Leach.

Type of the Genus Elater buprestoides Linn.

MELASIS Fab., Oliv., Lat. Elater Linn.

Antennæ inserted between the eyes near the margin, 11-jointed : *male* pectinated ; 1st joint long, 2nd small globose, 3rd short, 4th and following pectinated (6) : *female* serrated ; 1st joint long, 2nd and 3rd of nearly equal length somewhat cylindric, 4th and following joints less produced internally and more robust than in the male (6. a.)

Labrum concealed beneath the clypeus, very minute, slightly emarginate (1.)

Mandibles trigonate strong acute, slightly indented on the internal edge (2.)

Maxillæ short terminated by a membranaceous and hairy lobe :

Palpi hairy 4-jointed, 1st joint small, 2nd large, 3rd short securiform, 4th large, dilated in the middle, slightly truncated (3.)

Mentum transverse, anterior angles rounded, with a small tooth in the centre : *Palpi* attached to 2 moveable scapes, arising together from behind the mentum, 3-jointed, 1st joint long, 2nd shorter, 3rd large truncated, having apparently a small tubercle in the centre : *Lip* long, bifid, membranaceous (4.)

Head broad, nearly concealed in the thorax. Eyes small. Thorax more or less emarginate before, posterior angles produced into spines. Sternum not mucronated. Scutellum long. Body cylindric. Wings 2. Legs short. Tibiæ broad flat. Tarsi compressed entire, 5-jointed, 1st joint the broadest and longest, terminal joint slender. Claws simple (5 a fore leg).

BUPRESTOIDES Linn. *Syst. nat. t. 1. pars 2. p. 656.*—*flabellicornis* Fab. *Ent. Syst. t. 1. pars 1. p. 244.*

Obscure black, glossy, inclining frequently to castaneous, especially the elytra. *Antennæ*, palpi and legs rufous. Head pubescent punctured. Thorax slightly narrowed behind closely covered with small scabrous tubercles, with an impressed line down the centre. Elytra appearing rough under a lens with 9 striæ gradually approximating from the base to the apex.—In some specimens the elytra are chesnut colour, and the abdomen beneath somewhat rufous.

In the Author's and other Cabinets.

OF this genus, which connects the *Buprestidæ* with the *Elate-ridæ*, there is but one species known to inhabit our island ; and

as it varies exceedingly in size and colour as well as in the strength of its sculpture, it is probable that Olivier's and Panzer's figures are of our insect, although Gyllenhal is disposed to hold a contrary opinion.

Dr. Leach divided the *Sternoxi* of Latreille into two families, and has referred *Melasis* to the latter, from its wanting the spring beneath, which distinguishes the *Elateridæ*; its very cylindric form also, (so very much approaching the group containing *Buprestis viridis* L.) separates it at once from the *Elaters*; at the same time it cannot be denied that the space between the elytra and thorax and the thick terminal joint of the palpi do not well agree with the *Buprestidæ*.

The specific name which our insect bears in both the works of Linnæus has been restored, as well from respect as in justice to that great man; and it is to be regretted that the praise due to Fabricius for having established the genus, should have been diminished by the unnecessary confusion he has created, in changing the Linnæan specific name, and afterwards describing another insect under the name of *Elater buprestoides*.

In the year 1811 I found a perfect specimen dead in the decayed arm of a tree, in a wood in the neighbourhood of Halesworth, Suffolk. Dr. Herschel, however, is said to have first observed it at Windsor: it has since been taken in some abundance in a decayed tree in the New Forest, by Mr. Samouelle and Mr. Chant: the males are frequently smaller than the females,—one of the former sex is figured. It is common in Sweden and Germany, but rare about Paris and in Britain. Latreille says it walks badly, and if it fly, it cannot apply the vigour and activity which so strongly mark the family to which it belongs.

It inhabits dead decaying trees, which it perforates like the *Anobia*; it has been detected in the beech, willow, alder, and birch.

The plant figured is *Linum perenne* (Perennial Flax), communicated by Professor Henslow.



EULEPIA CRIBRUM.

The gray spotted Footman.

ORDER Lepidoptera. FAM. Tineidæ *Leach*.*Type of the Genus* * *Bombyx grammica* *Linn*.*EULEPIA* *nob.* *Bombyx* *Linn.*, *Fab.*, *Haw.* *Lithosia* *Lat.*, *Leach*.*Antennæ* setaceous composed of about 40 joints covered above with long scales bipectinated in the *males*, pilose, each branch terminated by 2 bristles (fig. 1.) : simple in the *females*, with two bristles arising on both sides from each joint (2.)*Labrum* and } attached to the clypeus.
Mandibles }*Maxillæ* short, broad, flat, not much longer than the head (3.)*Labial palpi* 2, very short, sparingly clothed with scales (4.) : 2- or 3-jointed, 1st joint long curved upward, 2nd and 3rd short of equal length (4. a. with the scales removed.)

Head rather small, thickly covered with hairy scales. Wings oblong, incumbent, convolute, inferior ones much folded. Thighs long and slender; anterior tibiæ short with a large spine on the middle of the internal side, 2nd pair terminated by spurs; posterior with 2 pair of spurs. Tarsi 5-jointed. Claws obscure. Pulvilli distinct (8 a fore leg.)

CRIBRUM *Linn. Syst. nat.* 2. 831. 76. *Fab. Ent. Syst. t.* 3. *pars* 1. p. 487. n. 248.

Pale cinereous minutely spotted with black. Superior wings with 2 interrupted longitudinal stripes diverging from the base, and 5 bent irregular transverse rows of large spots, and 6 long spots at the posterior margin, 4 black spots upon the thorax, a row down the back and each side of the abdomen which is croceous at the apex, inferior wings fuscous, darkest at the margin. Antennæ legs and under side fuscous. Some specimens have a much greater portion of black than others.

In the Cabinets of Mr. Dale and the Author.

THE short *Maxillæ* and pectinated *Antennæ* of the males of this genus induced me at first to include it amongst the *Arc-tiadæ* : but the shape of the wings, their disposition when at rest, the short palpi, and the general habit of the species, have

* The dissections are made from *E. Cribrum*.

determined me to include it, together with the *Lithosiæ*, amongst the *Tineidæ*, which accords with the ideas of Latreille in his *Genera Crustaceorum*, &c. v. 4. p. 221.

As it is clear that these species connect two families, the necessity of forming them into a genus will be obvious: the name *Eulepia* alludes to the pretty disposition of the coloured scales in the upper wings.

Eulepia Cribrum has never before been described or figured in any British work; and I am indebted to the assiduity and kindness of my friend, J. C. Dale, Esq., for the specimens that enrich my cabinet, as well as for those which were given to me to make the dissections necessary to illustrate the genus. Mr. Dale says they settle much upon heath in particular spots, as well as upon the stalks of grasses, with their wings closed round them like *Bombyx pulchella* Linn. (*Deiopeia pulchra* Steph.), and the true *Lithosiæ* and *Crambi*. Several males have been taken by Mr. Dale in different years, the end of June and beginning of July, upon Parley Heath, Hampshire; and two females were captured on the same ground about the middle of June last year: Mr. Bentley has also taken the male near Ringwood, in the same county. A specimen of the male is figured in the plate; the females differ only in having a larger abdomen; the larva is at present unknown. Of the other species *E. grammica*, which is equally rare, (the larva of which is well known, is found in May, and is a general feeder,) specimens have been taken at Windsor in October, which are now in the cabinets of the British Museum and Mr. Stephens: Mr. Donovan also found it in September near Manachty in the Isle of Anglesea, and has figured it in his *British Insects*, v. 13. pl. 450.

Alopecurus agrestis (Field Fox-tail grass) is given with the insect.



Dist. cyl. & Curtis London Feb 1825

LEPTOCERUS OCHRACEUS.

ORDER Trichoptera. FAM. Leptoceridæ *Leach*. Phryganites *Lat*.

Type of the Genus * *Phryganea interrupta Fab*.

LEPTOCERUS *Leach*. *Phryganea* *Linn.*, *Fab.*, *Lat*.

Antennæ inserted between the eyes, setaceous, very long, especially in the males, porrected, composed of numerous simple joints, 1st and 2nd joints thick, hairy, forming together an obovate club, 3rd joint long, 4th and following shorter, nearly of equal length (fig. 1.)

Labrum inflected, broad and coriaceous at the base, narrowed towards the apex, which is membranaceous quadrate, and hollow beneath (2.)

Mandibles very minute.

Maxillæ membranaceous, small, somewhat trigonate, lying parallel to the sides of the lip: *Palpi* very long and hairy, coriaceous at the base, membranaceous towards the apex, 6-jointed, 1st and 2nd joints long, robust, 3rd long, slender, bent at its base, 3 following shorter of nearly equal length (4.)

Mentum bilobed (5. b.): *Palpi* hairy, 3-jointed, articulations of nearly equal length, terminal joint compressed, flexible (c.)

Lip short, moveable, pubescent, received between the labrum and mentum (5. a.)

Eyes prominent. *Ocelli* 2, distant. *Abdomen* somewhat compressed, composed of 9 joints, in the male, with a considerable space down each side covered only with a thin membrane. *Superior wings* very much deflexed, ciliated, covered with hairs, having many hairy nerves, of which the costal and the next to it are the strongest (9.). *Inferior wings* not very large, plicate. *Legs* elongated. *Tibiæ* spined. *Tarsi* 5-jointed, 1st joint very long. *Claws* 2. *Pulvilli* small, (8 a fore leg.)

Larva inhabiting the water and residing in tubes, covered externally with sand, pebbles, shells, small pieces of grass, &c.

Pupa resembling the imago, inclosed in the case in which it lived in the larva state.

OCHRACEUS *nob*.

Pale and dull ochre colour. *Eyes* black. *Antennæ* towards their apex and annulations fuscous. *Head* and *thorax* ferruginous, the latter with 3 longitudinal fuscous obscure stripes. *Abdomen* cinereous. *Superior wings* long, lanceolate, rounded. *Cilia* fuscous. *Inferior wings* semi-transparent. *Legs* pale.

In the Author's Cabinet.

* The dissections are made from *Leptocerus ochraceus*.

THERE are in the cabinets of this country about 130 native species of the various genera forming the order Trichoptera established by Mr. Kirby: of this number the greater portion are unnamed and undescribed; of those that have been noticed by authors, descriptions may be found in the works of Linnæus, Fabricius, and the 13th volume of Latreille's *Histoire Naturelle*.

Neglected as Trichoptera has been, it is difficult if not dangerous at present to enter far upon the subject of species. Dr. Leach divided the order into 12 genera, but no characters have been published of them even, excepting four, viz. *Leptocerus*, *Odontocerus*, *Phryganea*, and *Limnephilus*.

Of the genus *Leptocerus* there are probably 20 British species: the elegant one figured has been selected from its appearing to be a nondescript; its rarity does not less entitle it to illustration, for I have not observed it in any of the cabinets of my friends: the specimens figured and described were taken by myself resting upon the paling which surrounds the Regent's Park, in the summer of 1822: the end of last August I took 3 from off plants in a marshy situation near the sea, upon the estate of Sir Thomas Gooch, bart., Benacre, Suffolk: being certain that those which I took near town appeared much earlier in the year, I suspected that they were another species, but I cannot discover the slightest variation in them.

With the larvæ and pupæ we are unacquainted; but little doubt exists, from their being found in the neighbourhood of streams or stagnant waters, that they are in their economy like the rest of the family, the beauty of whose habitations as well as the instinct displayed in the construction of them never fail to excite our admiration. An investigation of their economy would in all probability put us in possession of good secondary generic characters: it would not be attended with any difficulty to those who live in neighbourhoods where they are found, for the cadis is well known and celebrated amongst fishermen as a bait, and the case-worm may be met with in every brook and pond; the subject could not but be highly interesting to any one who loves to explore and study the works of Nature. Whenever such materials can be obtained as satisfactorily to identify the different stages of the insect figured, I shall not fail to avail myself of the opportunity of laying them before my readers.

The type of the genus (*L. interruptus*) is figured in Donovan's *Brit. Ins.* v. 16. t. 551. The plant figured, upon which *L. ochraceus* was found in the autumn, is *Epilobium hirsutum* (Large-flowered Willow-herb).



CRYPTUS PALLIPES.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo furcata Vill., Fab.

CRYPTUS *Jurine, Leach.* Tenthredo *Fab., Coqueb.* Hylotoma *Fab., Lat.*

Antennæ inserted between the eyes, pubescent, 3-jointed; 1st joint (in the male) cup-shaped, 2nd short, 3rd very long furcate, with numerous whorls of long bristly hairs round each branch (fig. 1.); 3rd joint (in the female) simple, filiform, without bristles (1. a.)

Labrum transverse, emarginate and ciliated anteriorly (2.)

Mandibles arcuated, acute, with a tooth about the middle of the internal edge, more evident in one mandible than the other (3.)

Maxillæ short, external lobe large, rounded, internal lobe small linear: *Palpi* long, hairy, 6-jointed, 1st joint small, 4 following of nearly equal length, the 4th joint being the broadest, terminal joint rather long and slender (4.)

Mentum elongated, narrowed before (5.): *Palpi* short, slightly hairy, 4-jointed, 3 first joints short, the 3rd being the broadest, 4th long, slender (b.): *Lip* tripartite of equal portions (c.)

Head with a tubercle in front above the eyes. Ocelli 3. Abdomen sessile somewhat short. Oviduct not exerted composed of 2 serrated lamellæ. Superior wings with 1 marginal cell and four imperfect submarginal cells. *Tibiæ* simple, with spurs at the extremities. *Tarsi* 5-jointed, 4 first joints with appendages beneath, the 1st joint longest the 4th shortest. Claws simple, with pulvilli (8 a fore leg.)

Larvæ with 6 pectoral and 12 or 14 membranaceous feet.

PALLIPES *Leach Zool. Mis. v. 3. p. 125. n. 3.*

Black shining. Head thorax and scutellum minutely punctured, thickly covered with very short yellow hairs invisible to the naked eye. Abdomen perfectly smooth, slightly æneous with a shade of piceous, pubescent. *Tibiæ* and *tarsi* very dull and pale brown. Wings very iridescent with a brownish yellow tinge, especially beneath the stigma which is brown as well as the nerves.

In the Cabinets of the British Museum and Mr. Stephens.

FABRICIUS having established the genus *Hylotoma*, in which he united several very excellent genera, Latreille afterwards separated them, and retained under that name the insects which compose Jurine's genus *Cryptus*: Dr. Leach has again divided

the group, extracting the species with furcate antennæ, for which he has retained Jurine's name *Cryptus*, leaving the remainder of the group under *Hylotoma*, following Latreille; and it is only to be regretted that he did not give another name to the genus, and thereby avoid the confusion which Jurine has introduced by employing the name *Cryptus* here, when Fabricius had 3 years before given that name to a genus of *Ichneumonidæ*, which Jurine was aware of, from his referring one of his divisions in that family to Fabricius's genus in a subsequent page; and had not Panzer published those *Ichneumonidæ* under the name of *Alomya*, by which they are now well known, it would still be necessary to substitute a new name, in which we should only be doing justice to Fabricius.

The male of *Cryptus pallipes* (a figure of which has never before appeared in any work) was first taken at Coombe Wood, by Mr. J. King; and was named and described by Dr. Leach, and deposited in the British Museum. J. F. Stephens, Esq. was afterwards so fortunate as to meet with both sexes of this extremely rare species in June, at the same place: the other species (*Tenthredo furcata* Vill., *C. Villersii* Leach) has been taken at Bristol in June; it is figured by Panzer in his *Faunæ Insectorum Germanicæ*, fasc. 46. tab. 1.; and by Coquebert in his *Illustratio Iconographica Insectorum*, tab. 3. fig. 4. *mas.* I have retained Villers's name, although it is objectionable, from its being a generic rather than a specific one, and descriptive of the male only; because as the greater proportion of insects have been named from one sex, we shall never have our nomenclature settled, if it is to be disturbed upon such occasions.

Triglochlin maritimum (Sea Arrow-grass) is figured in the plate.





COSSONUS TARDII.

ORDER Coleoptera. FAM. Curculionidæ *Lat., Leach.*

*Type of the Genus * Curculio linearis Fab.*

COSSONUS *Clairv., Fab., Lat.* Curculio *Fab., Payk., Herbst.*

Antennæ inserted in the centre of a fissure on each side towards the extremity of the rostrum in both sexes in the type, and in the male alone in *C. Tardii* (f. 7), and near the base of the rostrum at the posterior extremity of the fissure in the female (f. 8); as long as the rostrum, geniculated, composed of 9 joints, pubescent, hairy, excepting the 1st joint which is long and smooth, 2nd and 3rd a little longer than the 5 following which are very short, club somewhat conic probably 3-jointed (fig. 6).

Labrum none.

Mandibles irregular in form, somewhat acute at the apex, with one or two teeth on the internal edge (2).

Maxillæ short, somewhat acute at the apex which is coriaceous, with a row of strong obtuse curved bristles on the internal edge :

Palpi short, 4-jointed, 1st joint very robust, 4th small, cylindric, truncated (3).

Mentum short, narrowed at the base : *Palpi* 3-jointed, truncated (4).

Head produced into a rostrum which is dilated and depressed at the apex in both sexes in the type, and in the male alone in *C. Tardii* (7), and cylindric in the female of that species (8). Eyes scarcely prominent. Thorax broad, very much narrowed anteriorly, more or less depressed. Abdomen very much elongated, somewhat cylindric, depressed. Elytra entirely covering the body. Scutellum minute. Legs rather short. Thighs robust, notched beneath towards the apex. Tibiæ compressed, uncinated externally at the apex. Tarsi attached to the internal surface of the tibiæ, 4-jointed, 1st and 4th joints longer than the others, 3rd cordate or bifid (5 a fore leg).

TARDII *Vigors's MSS.*

Blackish, somewhat castaneous, rough, glossy. Head punctured, with a foveola between the eyes. Rostrum covered with large punctures, and a channel between the antennæ in the male; smooth in the female. Thorax deeply and closely punctured, smooth down the centre, with a transverse impressed line near the anterior margin. Elytra with about 10 deeply punctured striæ on each, the surface between rugose. Antennæ and legs castaneous, the former with the club very pubescent, the latter punctured, having a few short close hairs.—Some specimens are much more castaneous than others, and they frequently are not more than half the size of that figured.

In the Cabinets of Mr. Vigors and the Author.

* The dissections are made from *Cossonus Tardii*.

THE genus *Cossonus* was established by Clairville in the 1st volume of his excellent work "*Entomologie Helvétique*," where he has given *C. linearis* as the type of the genus: the different situation of the antennæ, as well as the form of the rostrum in the female of *C. Tardii*, are such marked differences as entitle it to be distinguished from the others, as a division if not as a genus.

I have great pleasure in adopting the specific name proposed by Mr. Vigers in honour of his friend James Tardy, Esq., of Dublin, to whom I have to acknowledge my obligations for specimens of this fine *Cossonus*, taken by himself and Mr. Vigers in July 1822, near Powerscourt waterfall, county of Wicklow, Ireland, under the bark of decayed hollies: it appears, like all wood-feeding insects, to be extremely local; for Mr. Tardy in a letter says, "I have in vain sought for it in places abounding as much in holly and in similar situations in the same county." A slimy exudation, similar to that seen where the *Nitidulæ* reside, was observed on the spots inhabited by the *Cossonus*.

The other species, which is an inhabitant of our own island, *C. linearis* F., has been found in Windsor Forest, and also in the neighbourhood of Fulham, where in June last Mr. Vigers captured a large quantity in the stump of a willow-tree: Mr. Howard Sims also took some specimens out of an old elm-tree, many years since, near Epping, Essex; these specimens Mr. Stephens suspected to be a new species, which he named *C. elongatus*, but from their mutilated state it is a difficult point to decide.

The plant figured, to which the insect is attached, is *Ilex Aquifolium* (Holly-tree).



COSSUS LIGNIPERDA.

The Goat Moth.

ORDER Lepidoptera. FAM. Bombycidæ Lat., Leach.

Type of the Genus Bombyx Cossus Linn.

COSSUS Fab., Lat. Bombyx Linn., Haw.

Antennæ pubescent, covered with scales above, setaceous, composed of numerous joints, pectinated internally, pectinations much stronger in the male (fig. 1) than in the female (2), 1st joint large, cup-shaped.

Labrum
Mandibles } none.
Maxillæ }

Palpi 2, erect, thickly covered with bristly scales, 3-jointed, 1st joint short, 2nd long, curved upward from the base, 3rd small, rhomboidal (4 and 4*).

Head vertical, with a tuft of hair upon the crown (7). Thorax robust, not crested, with large scales covering the base of the superior wings. Abdomen robust, very hairy, obtuse in the male, somewhat acute in the female. Wings entire, deflexed when at rest, superior ones long, and larger than the inferior. Legs; anterior pair, with a compressed spine on the internal side of the tibiæ; 2nd pair with 2 spurs at the apex, posterior pair with 2 spurs also in the middle of the tibiæ. Tarsi 5-jointed, basal and terminal joints the longest. Claws simple (8 a fore leg).

Larvæ fleshy, naked, having only a few bristles; with 6 pectoral, 8 abdominal and 2 anal feet.

Pupæ with the segments denticulated on the sides; inclosed in a case formed of pieces of wood cemented by gluten.

LIGNIPERDA Fab. Ent. Syst. t. 3. pars 2. p. 3. n. 1. Cossus Linn. Syst. Nat. 2. 827. 63. Haw. Lep. Brit. p. 89. n. 14.

Head and middle of thorax rich brown, anterior part of latter ochraceous, posterior portion whitish with a transverse black fascia. Abdomen gray excepting at the base in the male; fuscous, each segment being bordered with pale yellowish gray in the female. Superior wings purplish and reddish brown, clouded with pale yellowish gray, having numerous irregular black transverse streaks and reticulations. Inferior wings brown, with more obscure reticulated markings, vanishing towards the base.

In the Author's and other Cabinets.

Few illustrated works upon this superb order are without figures of the grand and beautiful insect exhibited in the plate;

and if its magnitude and harmonious colouring have invited the skilful hand of the artist, its singular economy and remarkable structure have no less attracted the attention of the philosopher: the learned De Geer and celebrated Lyonnet have been eminently successful in their investigations of the structure of the caterpillars; and their dissections and descriptions being so ample and numerous, that it is in vain for me to attempt here to give any satisfactory account of them, I must refer the reader to those authors for the history of this extraordinary insect, observing that the plates that illustrate the work of the latter are amongst the most beautiful the graver ever produced, and that in the delineation of the insect our own countryman Harris has employed his pencil with the greatest success.

The imago of *Cossus ligniperda* is very inconstant in colour and markings, as a comparison of the beautiful variety of the female figured from Mr. Stephens's cabinet with those usually taken will prove. This variety was probably bred from a caterpillar that fed upon the oak, its usual food being the internal substance of poplars and willows, which I have known so completely pierced in every direction by these larvæ, which exist in that state three years, that the first high wind has broken them down: in other instances they have ascended the standards of young willow-trees, the pith of which has been entirely destroyed, and of course the destruction of the stem followed. They are met with occasionally in May, but most frequently in September, at which time the specimen figured was found. It spun up in a few days, after endeavouring to make its escape from the smooth vessel in which it was at first confined, by the ingenious method exhibited in the plate, forming a ladder of its web which enabled it to ascend even glass to any height: my attention was first called to the fact by my esteemed friend Henry Browne, Esq., of Norwich, although I found afterwards that it had been observed by Roësel. The caterpillars emit a most disagreeable scent; nevertheless it was the opinion of Ray and Linneus that they were a favourite dish of the Romans.

The perfect insects may be taken the end of June and July resting upon the trunks of those trees in which they have been perfected, and upon the bark of which the females deposit their eggs.



Gentiana verna L. var. *alba* Murr.

ANTHIDIUM MANICATUM.

ORDER Hymenoptera. * FAM. Apiariæ *Lat.* Apidæ *Leach.*

Type of the Genus Apis manicata Linn.

ANTHIDIUM *Fab., Lat.* Apis *Linn., Kirby.* Trachusa *Jur.*

Antennæ inserted near the middle of the face, remote, filiform, of nearly equal length in both sexes, 13-jointed in the male, 12-jointed in the female, 1st joint elongated, hairy, 2nd very short (1, antenna of male).

Labrum inclosed beneath the mandibles, elongate, quadrate, coriaceous, entire, ciliated, a little dilated at its base (2).

Mandibles exerted, strong, broad, acute, multidentate (3).

Maxillæ long, coriaceous, horny down the centre, terminal lobe lanceolate, acute, inflexed, external edge ciliated (4 a) : *Palpi* short, of one joint, ovate, attenuated, pilose (4 b with the palpus magnified).

Mentum elongated, linear (5 a) : *Palpi* setiform, 4-jointed, 1st and 2nd elongated, compressed, of equal length, with membranaceous edges, 3rd and 4th short, the former arising from the side near the apex of the 2nd which is terminated by a few bristles (5 b, showing the 3rd and 4th joints greatly magnified) : *Lip* often reflexed, as long as the 2 first joints of the palpi slender, linear, suddenly contracted towards the apex (5 c).

Head nearly as broad as the thorax. Ocelli 3. Scutellum with the posterior margin produced, rounded, subemarginate. Abdomen incurved, convex above, broadly truncate at the base, apex of the males armed with spines; underside in the females very hairy, armed with a sting (6 abdomen of female). Superior wings with 1 marginal, 2 submarginal and 3 discoidal cells; posterior limb without nerves. Hinder feet polliniferous. Tibiæ short, hairy. Tarsi very hairy, 5-jointed, 1st joint compressed, quadrate, long, robust, 3 following short, terminal joint long, slender, the 1st joint of the hinder tarsi gradually narrowing from the base to the apex. Claws unidentate (8 a fore leg). Larvæ pollinivorous.

MANICATUM *Linn. Syst. Nat.* 2. 958. 28. *Fab. Ent. Syst.* t. 2. p. 330. n. 73. *Kirby's Mon. Ap. Ang.* ** c. 2. β. v. 1. p. 171. v. 2. p. 248.

Male piceous black, punctured, villose, hairs gray or inclining to ferruginous. Clypeus and mandibles yellow, the former black towards the base, the latter at the apex. Wings fuscous. Abdomen with fascicles of orange hairs and a yellow spot on each side the 4 first segments, the 5th with 4 yellow spots, 6th with lunar spots towards the centre and a curved spine on each side : last segment with 3 spines the centre one being the smallest. Legs black, very villose, 4 anterior tibiæ yellow at the apex. Tarsi yellowish brown.—Female smaller less villose than the male, hairs ferruginous, orange upon the tarsi and beneath the abdomen, which has no spines and instead of the fascicles it is ciliated on the sides of the abdomen.

In the Author's and other Cabinets.

No family of insects has excited greater interest, been better investigated, or more clearly understood than the bees,—circumstances arising no less from their wonderful economy and beautiful organization, than from the labours of some of the species supplying us with the luxuries and necessities of life; at once affording both instruction and amusement to the naturalist, and speculation and profit to the merchant.

Whilst war like a frost (if I may be allowed the expression) locked up the streams of knowledge that during the succeeding peace flowed in kindly harmony to instruct and benefit mankind, two of the most illustrious entomologists of the age were (unknown to each other) investigating the same subject; and it is delightful to see how those who take nature and truth for their guides arrive at the same conclusions, although sometimes led by different ways. The most perfect production that ever appeared in this country was at that time given to the world from the pen of Mr. Kirby, a work which it is far more easy for me to admire than to praise as it demands: in that work the student has a noble example of a monograph; his mind is directed “to look through Nature up to Nature’s God;” and so complete is the mass of scientific information, that little appears left to be done by future writers. At the same time Mons. Latreille was employed in arranging the family, including the exotic genera, and naming the groups, which first appeared in his “*Histoire Naturelle*,” vol. 3.; and in his subsequent works, the “*Genera Crustaceorum*,” and “*Considérations Générales*,” this admirable undertaking was perfected. With these advantages over every other family of British insects, it is no wonder that the *Apidae* should become the favourites of the entomologist; I confess they are so with me, and I anticipate much pleasure in the illustration of them. The genus now selected is extremely interesting in its habits of life; for a detailed account of which I must refer to Kirby’s “*Monographia Apum Angliæ*,” remarking that it is the only species of the genus found in this country. It is by no means a rare insect in the neighbourhood of London. In the months of July and August 1823 Dr. Stephenson took it in great abundance in lanes at South Lambeth and Chelsea: I am informed by him that it occurs chiefly on dry sandy weedy banks; and like most insects of this tribe, it may be taken on the wing during the whole of the day when the weather is fine, occasionally settling on various plants, especially those that are covered with short woolly hair or down, the *Stachys sylvatica* (Pl. 65.), *Glechoma hederacea*, &c., the tomentum of which it strips off for the purposes of nidification, forming its nest in hollow trees and other situations.

Mr. Kirby having observed it to frequent the *Agrostemma Coronaria* (an Italian Plant), I have figured an English species of the same genus, *A. Githago* (Corn Cockle).



Lucy Sturt. London Mar 1 1820

DOLICHOPEZA SYLVICOLA.

ORDER Diptera. FAM. Tipulariæ *Lat.* Tipulidæ *Leach.*

Type of the Genus Dolichopeza sylvicola nob.

DOLICHOPEZA nobis.

Antennæ rather longer in the male than in the female, porrected, approximating, longer than the head and thorax, composed of 12 joints, hairy with a few bristles irregularly situated, 1st joint cylindric, 2nd cup-shaped, small, 3rd the longest, the following decreasing in length to the end (3).

Lip small, membranaceous, bilobed, externally pilose (2 g and 2 *g).

Palpi 2, exserted, incurved, hairy, 5-jointed, 1st and 2nd joints short, 3rd and 4th longer, robust, 5th very long, pilose, flexible, composed of numerous muscular rings (2 f and 2 *f).

Head small, short, globular, produced into a short cylindric rostrum (2). Clypeus very broad (2*). Ocelli none. Eyes oval, entire. Thorax gibbous with a distinct transverse segment before. Abdomen very long, cylindric, apex somewhat incrassated in the males, acuminate in the females. Oviduct spiniform, corneous, bivalved. Wings lanceolate divaricate, ciliated, having about 14 cells, 2 of which are discoidal, nerves naked (9). Halteres long, naked. Feet very long, slender, hairy, vibratory. Tarsi 5-jointed, 1st joint longer than the tibia, last terminated by claws and pulvilli (8, terminal joints of the fore leg).

SYLVICOLA nobis.

Piceous inclining to cinereous. Head, a spot behind the thorax and 1st joint of antennæ pale: apex of abdomen in the male and style in the female ochraceous. Wings iridescent, yellowish fuscous with a blackish spot covering the oval cell and extending to the costa. Legs piceous, tarsi white excepting the base of the 1st and the terminal joint which are piceous.

In the Cabinets of Mr. Stephens and the Author.

DOLICHOPEZA sylvicola is one of those valuable insects which from its partaking of the characters of neighbouring genera

has been called conterminous: it exhibits to us affinities existing in nature by which we are enabled to approach nearer to a natural arrangement. It differs from *Tipula* in having only 12 joints in the antennæ, and a few scattered bristles upon them, instead of 13 joints ornamented with whorls of hairs; from *Limnobia* it differs in the length of the terminal joint of the palpus, and the long cylindric joints of the antennæ; but the most decided and remarkable characters which at once distinguish it from both these genera are the absence of the 3rd discoidal cell, which in them is never wanting, various as the wings of these genera are, and the extraordinary length of the basal joints of the tarsi, which are all very much longer than the tibiæ:—to this circumstance the generic name that I have adopted refers.

In my ramble through the New Forest the beginning of last June, in a part that lies rather low and was at that time swampy from springs that appeared to rise there, upon the mossy trunk of one of the magnificent beech-trees that ornament the neighbourhood of Lyndhurst I saw many of both sexes of this elegant insect; they rested as represented in the plate with their wings spread, and although it was a fine calm morning, their hinder legs, which did not touch the tree, waved backward and forward, as if the least touch would disjoint them: the trunk was so much overshadowed that had it not been for the white feet of the insects, which rendered them conspicuous, they would have escaped my observation; and it is a little singular that although this was on my first arrival, and I stayed some time in that neighbourhood, I never saw any more of them. Upon looking over Mr. Stephens's cabinet I found one female which he had always considered as being different to other described genera, neither does it appear, as a species, to have been before noticed.

Polygala vulgaris (Milkwort), which was in flower at the time near the spot, is figured with the insect.



ACILIUS CALIGINOSUS.

ORDER Coleoptera. FAM. Dyticidæ *Leach.* Hydrocanthari *Lat.*

Type of the Genus Dytiscus sulcatus Linn.

ACILIUS *Leach.* Dytiscus *Linn., Fab., Gyll.* Dyticus *Geoff., Lat.*

Antennæ inserted close to the eyes, at the base of the mandibles, smooth, filiform, 11-jointed, 2nd joint short, 3rd long clavate, the following clavate, decreasing in length to the terminal joint, which is slightly curved (fig. 6).

Labrum naked, transverse, slightly emarginate (1).

Mandibles small, bent, broad and bifid at the apex (2).

Maxillæ small, bent, acute, ciliated internally: *Palpi*; *internal* attenuated, 2-jointed, 1st joint small, 2nd long, curved; *external* 4-jointed, 1st joint minute, 2nd and 3rd slightly clavate, 4th large, longer than the 3rd, attenuated, rounded at the apex (3).

Mentum transverse, slightly lobed at the sides: *Palpi* 3-jointed, attached to a cup-shaped scape, 1st joint short, 2nd and 3rd long, the latter somewhat clavate: *Labium* large, rounded, ciliated (4).

Head somewhat small, rounded. Thorax transverse, broad. Elytra depressed, ovate, narrow at the base, smooth in the males, sulcated and hairy in the females. Wings 2. Scutellum distinct. Tibiæ all short. Tarsi 5-jointed, anterior, patelliform in the males, the first 3 joints being dilated, ciliated, with suckers beneath. Claws simple, the internal one being the longest (5). Posterior tarsi compressed, elongated, ciliated on both sides with very long hairs, one claw very minute (5*).

CALIGINOSUS *Nobis.*

Male smooth, minutely punctured. Head smooth, black, anterior part and a transverse line between the eyes dull reddish-ochraceous. Thorax black, with the margins, and a transverse line in the middle dilated at the ends, ochraceous. Elytra ochraceous, pubescent, with 3 obscure lines on each, minutely punctured with black, edges of the suture and margin near the apex unspotted; beneath piceous black, the sternum, margins of thorax and spots down the sides of the abdomen ochraceous. Antennæ and thighs pale and dull ochraceous, tibiæ and tarsi ferruginous, clouded with black.—*Female*: Elytra with 5 elevated longitudinal lines on each, the intermediate surface villose. Abdomen beneath dull ochraceous.

In the Cabinets of Mr. Chant, Mr. Bentley, and the Author.

THE *Dyticidæ*, although inhabiting a different element to the *Carabidæ*, are closely allied to them in structure, particularly in the form of the antennæ and the organs of mastication, the maxillæ being furnished with 2 pair of palpi; and the anterior tarsi are commonly dilated in the males.

The genus *Acilius*, established by Dr. Leach in the *Zoological Miscellany*, may be distinguished from *Dyticus* by the great flatness of the insects, by the hairy elytra of the females, which have but few striæ, and by the basal joints of the tarsi in the 2nd pair of legs not being dilated; the instrumenta cibaria also vary particularly in the form of the mentum, and the terminal joint of the external maxillary palpus, which is longer than the penultimate, and thickest in the middle.

Our insect appearing upon a careful examination to be unnoticed by any author we have been able to consult, and being darker than the common species, the specific name of *caliginosus* has been thought applicable. It has been ascertained to be British by Mr. Chant, who, with his friend Mr. Bentley, took it plentifully in the ditches at Whittlesea Meer, Huntingdonshire, the end of July 1824. It is smaller and darker than *A. sulcatus*, and the thighs are entirely pale and not black at their base in the posterior pair, as in *A. sulcatus* (fig. 5* which is shaded to show the difference).*

The larvæ, which are (like those of the *Carabidæ*) very voracious, inhabit the water, living upon other insects and even small fishes: the perfect insects, which with their hind legs row themselves about with the greatest ease, can also fly well; they are exceedingly ravenous, and will destroy each other if confined together.

The plant figured is *Myosotis palustris* (Marsh Mouse-ear).

* It is singular that Linnæus should have been unacquainted with the female of our common species, as appears not only from his Works but by his cabinet, which Sir James E. Smith politely allowed me to examine a few years since.





EUPITHECIA LINARIATA.

The beautiful Pug.

ORDER Lepidoptera. FAM. Phalænidae Lat., Leach.

Type of the Genus Phalæna Absinthiata Linn.

EUPITHECIA nobis. Phalæna Linn., Fab., Haw. Abraxas Leach.

Antennæ alike in both sexes, inserted towards the posterior part of the head, close to the eyes (f. 7), rather long, setaceous, composed of numerous joints, covered with scales above, hairy beneath (f. 1, three joints magnified).

Maxillæ as long as the antennæ, slender (3).

Labial Palpi 2, projecting obliquely, like a beak, beyond the head, thickly covered with long and broad scales (4), 3-jointed, 1st joint long robust, slightly curved upward, 2nd rather shorter, somewhat conical, 3rd small, nearly globose (4 a).

Clypeus slightly projecting, covered with thick scales. Abdomen short, slender. Wings entire, extended horizontally when at rest; superior long, somewhat lanceolate, with 2 costal nerves and a rhomboidal cell, of which the 2nd costal nerve forms one side (9); inferior small. Legs rather slender. Tibiæ of anterior pair very short, with a long, compressed, membranaceous spine, arising on the inside near the centre, 2nd and 3rd pair terminated by 2 spurs, the latter having 2 also near the middle. Tarsi 5-jointed, 1st joint in the anterior pair longer than the tibia. Claws and Pulvilli minute (8, a fore leg). Larvæ with 10 feet.

LINARIATA Fab. Ent. Syst. v. 3. pars 2. p. 190. n. 224. Haw. Lep. Brit. p. 364. n. 153.

Pale ochraceous. Thorax with a black spot in the centre near the posterior margin, 2nd segment of the abdomen blackish, the 1st six segments with a black spot in the middle close to the posterior margin. Superior wings with a costal spot near the base, and a large transverse waved fascia in the centre, bright cinereous variegated and spotted with black, the latter being margined with white, another white sinuated line nearer to the posterior margin, running through 7 irregular cinereous and black spots; an angulated fascia near the base, and another nearer to the posterior margin ferruginous. Inferior wings with several transverse pale cinereous bands, that next the posterior margin being the broadest and having a zigzag pale line running through it. Cilia fuscous with obscure dark spots next the base.

In the Author's and other Cabinets.

THIS genus, which comprises Mr. Haworth's section "*Abbreviata*" (with the exception of *Pterapherapteryx hexapterata* and *sexalisata*), contains 38 British species, 27 of which are described in *Lepidoptera Britannica*, and three more by Hubner, viz. *Phalena abbreviata*, *insignata*, and *exiguata*.

These pretty moths form a most natural genus, and when alive are characterized (as Mr. Haworth has observed) by the elegant attitude in which they repose, with their wings beautifully expanded, lying close to the surface upon which they rest, as moths are displayed for our cabinets by the London collectors. The characters perhaps most deserving our attention are the great length of the basal joint of the anterior tarsus, and the shortness of the tibia, which has an internal flat spine, a character as constant in many Lepidopterous families as the emarginated anterior tibia is amongst the *Carabidæ*: whether this tibial process, which has hitherto been entirely neglected, will prove essential in a natural arrangement of this Order I am at present not competent to decide; and although I have given a drawing of the disposition of the nerves of the superior wings, I suspect, from the observations I have made, that they will rather supply family, than generic characters, which however will be very valuable, as at present those that we have are very minute and uncertain.

During a few days that I spent at Dover in the middle of August 1820, previous to my visiting the opposite coast, I beat a beautiful caterpillar from the *Antirrhinum Linaria*, which grew in abundance, and was in full flower at the time, upon the Castle-hill; it fed upon the blossoms, and began very soon to form its cocoon, which prevented my making a drawing of it: the early part of the following June, to my great satisfaction, the elegant specimen figured in the plate was produced.

Fabricius describes the larva as yellow, with red feet, and spots down the back of the same colour; but I think mine was a beautiful yellow, with dark chesnut spots.

Antirrhinum Linaria (Common Toad-flax), from which the moth derives its specific name, is given in the plate.



HYLOTOMA STEPHENSII.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo cœrulescens Fab.

HYLOTOMA *Fab., Lat., Leach.* Tenthredo *Linn.* Cryptus *Jur.*

Antennæ inserted near the centre of the face, divaricating, curved, 3-jointed, 2 first joints small, 3rd very long, filiform, and pilose in the males, the hairs arising at right angles on one side (f. 1) : not so long in the females, somewhat clavate, and scarcely hairy (1 a).

Labrum exserted, transverse, hairy, sides convex, anterior margin nearly straight (2).

Mandibles somewhat robust, arcuate, with an obtuse tooth near the middle of the internal edge, less evident in one than in the other mandible, ciliated externally (3).

Maxillæ small, internal lobe nearly obsolete, external oval, hairy : *Palpi* hairy, 6-jointed, 2 first joints small, 3 following of nearly equal length, the 1st being the most robust, terminal joint slender and the longest (4).

Mentum (5 a) somewhat quadrate, dilated into angles on each side where the *Palpi* arise, which are 4-jointed, 1st joint small, 2nd and 3rd of nearly equal size, 4th slender, elongate, conic (b) : *Lip* tripartite, of nearly equal portions (c).

Head with a tubercle between the antennæ. Ocelli 3. Abdomen sessile, rather short and thick. Oviduct not exserted, composed of 2 serrated lamellæ. Superior wings with one marginal cell, emitting a nerve from the apex, and 4 perfect submarginal cells. Tibiæ simple, the 4 posterior, having a spine on the internal side, below the middle (8 a hind leg).

STEPHENSII *Leach Zool. Mis. v. 3, p. 123. n. 6.*

Head and thorax violaceous-black, the latter inclining to rufous in parts. Abdomen yellowish-ochraceous, palest at the base, pectus ferruginous, violaceous-black in the middle. Wings iridescent, stained pale yellowish fuscous ; costa, stigma, and nerves piceous. Legs brown, pubescent ; 4 posterior thighs yellow, except at their apex. Tarsi and antennæ nearly black.

In the Cabinets of Mr. Stephens and the Author.

THE division of Fabricius's genus *Hylotoma* has been already explained in the account of *Cryptus* (fol. 58): it is therefore only necessary here to observe, that, independent of the difference of the instrumenta cibaria, there are external characters that fully justified Dr. Leach's separating that genus from *Hylotoma*; the simple antennæ in both sexes in *Hylotoma*, the branch from the marginal cell of the wings, and the spines of the 4 posterior tibiæ, are the most remarkable. The genus as it now stands contains 14 British species, which I shall here enumerate, observing that the first may possibly belong to Le Peletier de Saint-Fargeau's genus *Ptilia*.

HYLOTOMA

- | | |
|------------------------------|-------------------------------|
| 1. pilicornis <i>Leach</i> . | 8. Klugii <i>Leach</i> . |
| 2. Berberidis <i>Klug</i> . | 9. segmentaria <i>Panz</i> . |
| 3. Anglica <i>Leach</i> . | 10. cœrulescens <i>Fab</i> . |
| 4. enodis <i>Linn</i> . | 11. femoralis <i>Klug</i> . |
| 5. violacea <i>Klug</i> . | 12. Rosæ <i>Linn</i> . |
| 6. cœrulea <i>Klug</i> . | 13. Stephensii <i>Leach</i> . |
| 7. ustulata <i>Linn</i> . | 14. pagana <i>Panz</i> . |

Our species (of which a female is figured) was first discovered at Darent Wood, Kent, by J. F. Stephens, Esq., in honour of whom it was named by Dr. Leach. It is nearly allied to *H. pagana*, from which it differs in having more transparent wings, brown and pubescent tibiæ, and black tarsi: it appears to be a local species, as I have never met with it myself, excepting at Darent, where it is taken in June, in which month all the species above recorded are to be found.

Stachys sylvatica (Hedge Wound-wort), referred to in folio 61, is figured with the insect.



HELCOMYZA USTULATA.

ORDER Diptera. FAM. Muscidae *Lat., Leach.*

Type of the Genus Helcomyza ustulata Meig.

HELCOMYZA Meig. Scatophaga *Fab., Lat. Musca Linn., Fab.*

Antennæ inserted near the centre of the face, somewhat nodding, 3-jointed, 1st and 2nd joints pilose, the former small, cylindric, the latter cup-shaped, 3rd large pubescent, somewhat ovate, from the outside of which near the base arises the seta, the basal joint is small, cylindric, the terminal one subulated, hairy (3).

Labrum not so long as the lip, horny, hollow, dilated at the base, somewhat acute at the apex (1, b).

Tongue nearly as long as the labrum, subulated, acute (1, c).

Mandibles and } none.

Maxillæ

Palpi 2 longer than the labrum, membranaceous, exarticulate, clavate, very hairy (1, e).

Mentum? long slender (1, h). Fig. a, is part of the head which receives the labrum &c.

Lip large, membranaceous, bilobed, hairy (1, g).

Proboscis vertical, partly exerted (2, g). Head somewhat triangular, slightly produced in front at the insertion of the antennæ. Vertex horizontal. Eyes rather small, not prominent, distant in both sexes. Ocelli 3, placed close together. Wings incumbent, transparent with about 13 cells in each. Halteres visible. Thighs robust, posterior the longest. Tibiæ simple hairy, without bristles. Tarsi 5-jointed, 1st joint the longest in the 4 anterior feet only, not longer than the 2nd in the posterior pair, in the males at least, 4th joint cordate, terminal joint truncated. Claws simple. Pulvilli large (8 a fore leg).

USTULATA Meigen's MSS.

Cinereous, hairy. Face silvery white. Crown of head brownish, with very minute black hairs. Eyes castaneous. Thorax brownish, pale on the sides, with 4 obscure longitudinal darker lines, closely covered with short black hairs, and a few black bristles towards the sides, and upon the scutellum, which is brownish also. Abdomen entirely cinereous, covered with long soft black hair. Wings transparent, pearly white, excepting the 3rd costal cell which is ferruginous, a black spot upon the transverse nerve near the centre of the wing, and a paler one at the junction of the nerves below, and nearer the base. Halteres ochraceous. Legs thickly covered with soft black hairs. Tibiæ, tarsi, and pulvilli, ferruginous, tinged with cinereous.

In the Cabinets of the British Museum, Mr. Dale, and the Author.

MEIGEN having engaged to describe the European Diptera, and having already published three volumes of his excellent work, I have always been desirous rather to follow than to anticipate that celebrated entomologist in his arduous undertaking; I should not therefore have published this genus at present, had I not considered it an example of Latreille's genus *Scatophaga*, and had proceeded too far under that impression to stop its publication, when Mr. Samonelle pointed out to me a specimen sent to Meigen by Dr. Leach, which was returned to the British Museum with the names I have adopted. The specimen sent was the contrary sex to mine, and is exceedingly injured, as many of the insects in the Museum are, by the bottoms of the drawers having been unfortunately made of cedar, from which a resinous substance is constantly distilling, sometimes making its appearance inside, at others outside the drawers: this inconvenience I am happy to learn will soon be remedied, and I should not here have made this digression did I not hope it might guard others from the like misfortune. But to return: of the identity of the genus, which I believe is unpublished, there is no question; and there appear to be good reasons for dividing it from *Scatophaga*; for besides differences in the trophi and antennæ, the tibiæ being only woolly without any bristles, and the basal joint of the posterior tarsus, which is not longer than the 2nd, rather compressed, and a little bent, at once distinguish it from that genus. Of the species I cannot be so certain, the resin having destroyed the colour, and altered the appearance; but from a memorandum in Dr. Leach's hand-writing, stating that the specimens were taken at Swansea and Yarmouth, it is evident *H. ustulata* is a sea-coast insect; and my friend J. C. Dale, Esq. took his specimens at Christ Church, Hants: and about the end of August 1821, during some tremendous gales, I found several upon the extensive and exposed sand-hills stretching along the coast to the south of Calais. There appear to be three other species of *Helcomyza* inhabiting Britain, one only of which was named by Meigen at the same time as the species under consideration.

Glaucium luteum (Yellow-horned Poppy), which was in flower at the time, is figured with the insect.



AGRILUS CHRYSEIS.

ORDER Coleoptera. FAM. Buprestidæ *Leach.* Sternoxi *Lat.*

Type of the Genus Buprestis viridis Linn.

AGRILUS *Megerle.* Buprestis *Linn., Fab., Lat., Leach, &c.*

Antennæ inserted in a cavity between the eyes, close to the base of the clypeus, serrated in both sexes, 11-jointed, 1st joint rather short, bent at its base, 2nd and 3rd short, nearly of equal length, 4th slightly, 5th and following very much produced on the internal edge (fig. 6).

Labrum exserted, quadrate, slightly emarginate, scarcely ciliated (1).

Mandibles large in proportion to the rest of the mouth, triangular, thick, somewhat acute (2).

Maxillæ membranaceous, hairy, bilobed, internal lobe small:

Palpi 4-jointed, 1st joint minute, 2nd somewhat long, clavate, 3rd short, 4th the longest, ovate, truncate (3).

Mentum triangular: *Palpi* apparently only 2-jointed, 1st joint short, 2nd long, conical: *Lip* projecting as far as the *Palpi*, acuminate, ciliated (4).

Head *very retuse*. Thorax *cylindric, nearly quadrate, posterior margin sinuated, produced in the centre, applied to the base of the elytra; having a mucronated process between the anterior pair of legs.* Scutellum *transverse, posterior margin rounded.* Elytra *very long, subululated, slightly serrated at the apex.* Wings 2. Abdomen *thick, not formed for leaping.* Feet *not very short.* Tarsi 5-jointed, 3rd joint considerably dilated, 4th bilobed, 5th *cylindric with simple claws (5 a fore leg).*

CHRYSEIS *Zeigler.*

Golden purple above, beneath metallic with a blackish tinge, pubescent. Head finely and irregularly channelled longitudinally on the crown. Thorax finely and irregularly punctured and channelled transversely, the anterior margin slightly elevated, a fovea in the centre near the posterior margin, and an impression on each side. Elytra thickly and minutely punctured, having a scabrous appearance, with a few short bristles at the apex. Antennæ and legs æneous black. Eyes brownish black.

In the Cabinets of Mr. Stone and Mr. Griesbach.

IN a former part of this work the arrangement of the extensive genus *Buprestis* was alluded to; and through the kindness of my friend W. S. MacLeay, Esq. I am now enabled to

give the generic name of the cylindric group, which is the subject of the present paper, as well as the specific name of the species, which is quite new to this country.

Megerle appears to be the first who has paid attention to this splendid family, and has, I believe, published his observations in the Vienna Transactions, which unfortunately I have not been able to consult; the characters have therefore been necessarily drawn from my own observations. Upon comparison with those of *Buprestis* (folio 31), it will be seen how essentially different the organs of manducation are, which might be expected from the peculiar habit of the group.

The New Forest produced last year 2 species of this family new to Britain, *Buprestis nitidula*, already figured, and *Agrilus chryseis*. A specimen of the latter was beat out of an old whitethorn bush, between Brockenhurst and Bottomsley, Hampshire, the end of September, and transmitted to Mr. Stone; and Mr. Griesbach has favoured me with the sight of another specimen, taken in Windsor Forest about the same time, inclining rather more to a dull purple. Two other species of *Agrilus* are found in this country, *Buprestis biguttata* Linn., and *B. viridis* Linn.; the former I have had the pleasure of capturing in Darent Wood in June, upon the trunks of trees, as well as flying in the heat of the day: the latter species appears to be universally distributed over the country, and is much attached to the oak; I have several times found it in Kensington Gardens, in June. Upon the continent there are several species closely allied to this insect, which may have been overlooked or confounded with it, from our not being well acquainted with them.

Verbena officinalis (Vervain) is figured in the plate.





ARCTIA CÆNOSA.

The Whittlesea Arctia.

ORDER Lepidoptera. FAM. Arctiadæ *Leach.*

Type of the Genus Bombyx Salicis Linn.

ARCTIA *Schränk., Lat., Leach. Bombyx Linn., Fab. Phalæna Linn.*

Antennæ longer in the males than in the females, bipectinated, the branches which are very long in the males (fig. 1), and very short in the females (2), arise from the base of each joint, and are ciliated and terminated by a bristle, the 1st joint is large globose, with a dense and long tuft of hairy scales.

Labrum and *Mandibles* small and obscure.

Maxillæ short, flat, membranaceous, composed of two separate filaments (7*).

Labial palpi projecting in some beyond the head, very hairy, cylindric, 3-jointed, 1st and 3rd joints short, intermediate one long (4 and 4 a).

Wings trigonate, deflexed, undivided. *Legs* short, robust. *Tibiæ* short, with a compressed spine on the internal side of the anterior pair, 4 posterior ones with spurs at their apex. *Tarsi* 5-jointed, *claws* very minute (8 a fore leg).

Caterpillars hairy with 6 pectoral, 8 abdominal, and 2 anal feet.

CÆNOSA *Hübner's Europaischer Schmetterlinge, pl. 51. 218. mas.*

Male: cream colour, head and anterior part of thorax fuscous-ochraceous: superior wings griseous, tinged with fuscous-ochraceous, darkest along the costa and beneath the central nerve, with a curved line of fuscous spots, more or less obscure, nearly parallel to and approaching the posterior margin; inferior wings pearly white, tinged ochraceous along the posterior margin: underside of superior wings brownish ochraceous, cilia whitish: antennæ cream colour, radii brown; palpi and legs golden colour, dark brown on one side. *Female* dull white tinged with ochraceous, pectinations of antennæ black; legs and palpi entirely aureous, thighs covered with long soft white hairy scales.

In the Author's and other Cabinets.

THE genus *Arctia* now contains 5 British species, and may be separated into nearly as many divisions, from the various characters of the caterpillars. 1. *A. cænosa* Hüb., has a larva with tufts down the back, and long fascicles of hairs like 2 horns upon

the neck, and one at the tail. 2. *A. V-nigra* Fab., the larva has tufts down the back, but has no horn-like fascicles. 3. *A. Salicis* Linn., has a larva less hairy without tufts. 4. *A. chrysorrhæa* Linn.; and 5. *A. phæorrhæa* Haw., have larvæ much more hairy than the last, with whiskers to the head. It must be observed, that in *A. cænosa* the rays of the antennæ are terminated by 3 or 4 spreading bristles; the tongue is shorter; the two first joints of the palpi are much more thickly covered with hair, and the terminal one is much more distinct; the basal and terminal joints when deprived of their scales are much smaller, and the middle one much longer, than in the type *A. Salicis*, from which all the dissections in the plate are made.

We are indebted to J. C. Dale, Esq., for this addition to our Fauna; for having found a caterpillar of *Arctia cænosa* at Whittlesea Meer, he directed the Messrs. Standish to the spot, who took several of the larvæ (one of which is figured), as well as beautiful specimens of the imago.

The caterpillars, which are found and feed upon the Burr-reed, and also, I am informed, upon *Butomus umbellatus*, are full-grown the end of July and beginning of August, when they attach themselves to a leaf, where they form a regular, nearly oval cocoon, semitransparent, and composed externally of their own hairs. It is a curious fact, that the moths appear before many of the larvæ have begun their cocoons, which is the case also with *Hypogymna dispar*. In Hübner's work the male alone is figured, and no representation of the caterpillar has ever before been given.

Arctia chrysorrhæa and *phæorrhæa* appear periodically, and at times to an alarming degree. *A. Salicis* is not uncommon upon willows, but *V-nigra* is in very few cabinets; the caterpillar feeds upon the lime, and the moth has been found upon that tree the middle of August, in the neighbourhood of Darent, Kent.

A leaf of the plant upon which the caterpillar fed, whilst in my possession, is figured; it is a *Sparganium* (Burr-reed); the species could not be ascertained, but probably it will feed upon any of them.





BRACON DENIGRATOR.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat., Leach.*

Type of the Genus Ichneumon desertor *Linn.*

BRACON *Jur., Fab., Lat., Panz.* Ichneumon *Linn., Fab.* Vipio *Lat., Hist. Nat.*

Antennæ inserted in front of the head, nearly filiform, somewhat thickened towards the extremity in the male only, pubescent, composed of about 47 joints, 1st joint robust, elongated, truncated, 2nd cup-shaped, 3rd longer than the following, which decrease in length imperceptibly to the last joint which is conic (fig. 1).

Labrum coriaceous, trigonate, inflexed, apex acute, membranaceous appendage small, lanceolate. *Lat.*

Mandibles small, acute, internal edge sinuated (3).

Maxillæ small, terminal lobe large, trigonate, somewhat acute, hairy, coriaceous externally, membranaceous internally: *Palpi* very long, pilose, 1st and 2nd joints small, the 3 following long of nearly equal length, the first being very robust, the last slender (4).

Mentum elongated, dilated anteriorly, deeply emarginate (5 a):

Palpi longer than the lip, pilose, 3-jointed, 1st joint short, 2nd long, robust, clavate, 3rd long, somewhat slender cylindric (b):

Lip entire, concave, sides conniving externally (c).

Head quadrate. Ocelli 3, distant in the males, approximating in the females. Abdomen somewhat depressed, nearly sessile, ovate in the males, obovate in the females. Oviduct in some longer, in others shorter, than the body (6). Wings pubescent, with 1 marginal, 2 submarginal and 2 discoidal cells, the marginal and 2nd submarginal cells elongated in the females (9). Legs robust. Thighs short. Tibiæ spurred. Tarsi 5-jointed, 1st joint elongated, 4th minute. Claws simple. Pulvilli distinct.

DENIGRATOR *Linn. Syst. Nat. 2. 934. 28.—Fab. Ent. Syst. v. 2. p. 161. n. 112.*

Black, smooth, shining, slightly pubescent, abdomen orange, shining, punctured pubescent. Wings iridescent, dark fuscous, with a transverse obscure, whitish, lunulated mark, crossing the 1st submarginal cell, nerves strong, piceous: female larger than the male: oviduct shorter than the abdomen.

In the Cabinets of Mr. Stephens and Mr. Stone.

ALTHOUGH there are a considerable number of minute species with transparent wings which are comprised in the genus

Bracon, it will be found that they do not well agree with the characters of the larger ones with opaque wings, which appear to be universally distributed, being found as far south as the Cape of Good Hope, from whence we receive a variety of beautiful species; on the continent of Europe there have been several detected, but we can claim but one at present in this country.

Mons. Latreille has observed that the mouth is produced in the form of a rostrum, like *Agathis*: it appears to me that the lip and maxillæ unite, so as to form a short proboscis; but this is not easily discoverable in dead specimens, except by dissection. The same author has described the labial palpi as 4-jointed, but I am inclined to agree with Fabricius, that they have only 3 joints. I would wish here to remark, that the costal nerve is continued round the wing, and not terminated near the apex, as is common with the Ichneumonidæ; that the submarginal cells are complete, but the last transverse nerve is less strong than the others, especially in the female; and that the 1st submarginal and two discoidal cells, which are nearly of equal size, form a regular line across the superior wings: indeed so great are the differences of structure, as well as economy of *Bracon* and its congeners, that it is probable when further investigated and better understood, they will be found to form a natural and extensive family.

The male of *Bracon Denigrator*, it is presumed, is very rare even upon the continent, otherwise it would have been figured with the other sex. That which is here represented, was taken last year in Birchwood, Kent, and is now in the possession of Mr. Stone; and the only female that I have seen, was captured by the Rev. W. Kirby, and is now in Mr. Stephens's fine collection. Panzer in his *Fauna Germanica*, fasc. 45. n. 14. has figured this sex.

Fabricius says, that it frequents gardens upon the continent, where it appears to be not uncommon; and Latreille informs us, that the female deposits her eggs in the fruit of plants, especially thistles.

The plant figured is *Cichorium Intybus* (Wild Succory).



Wasp, *Vespa* *lucorum* May 1 1825

MICRODON APIFORMIS.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.*

Type of the Genus *Mulio apiarius* *Fab.*

MICRODON *Ill., Meig.* *Musca* *Linn., De G.* *Mulio* *Fab.* *Syrphus* *Fab.* *Aphritis* *Lat., Leach.* *Stratiomys* *Panz.*

Antennæ considerably longer than the head, porrected, contiguous, inserted upon a tubercle at the top of the face, somewhat scabrous, 3-jointed, 1st joint long, slender at the base, 2nd short cupshaped, 3rd elongate-ovate, conic, near the base of which arises a seta as long as the joint, having a minute articulation at its base (f. 3).

Labrum short, horny, robust, obtuse (1, b).

Tongue as long as the labrum, slender, very acute (c).

Mandibles and *Maxillæ* none.

Palpi none?

Lip sub-membranaceous, retractile, hairy, bilobed, very much dilated (g).

Proboscis not longer than the head, nearly vertical. Head vertical, broad, short, obtuse (2). Eyes distant in both sexes, less so in the males. *Stemmata* 3. Thorax nearly globular. Scutellum emarginate behind. Abdomen large, trigonate. Wings incumbent, parallel, scarcely so long as the body. Halteres 2, small, distinct. Legs robust. Tibiæ posterior, slightly bent. Tarsi 5-jointed, articulated, dilated; 1st joint the longest, especially in the posterior pair, 2nd and 3rd transverse, 4th very small bilobed, 5th trigonate. Claws small. Pulvilli distinct (8 a fore leg).

APIFORMIS *De Geer, tab. 7. f. 18. 20. Meig. Syst. Bcsch. v. 3. p. 163. n. 1.—apiarius* *Fab. Syst. Ant. p. 185. n. 9.—auro-pubescent* *Lat. Hist. Nat. t. 14. p. 358.—mutabilis* *Panz. Faun. Germ. fasc. 82. pl. 21.*

Blackish green, tinged with yellowish purple, very pubescent, minutely punctured; face and abdomen densely covered with yellowish, shining, short hair. Wings pale fuscous, darkest round the nerves, sometimes slightly ferruginous. Legs ferruginous, with very short yellowish hairs. Eyes and antennæ black, thighs black excepting at their apex.

Obs.—The pubescence in some specimens is silvery, in others golden, varying probably according to the age of the insect.

In the Author's and other Cabinets.

This insect has been generally known as the *Aphritis auro-pubescent* of Latreille; but as Illiger in the 2nd volume of his

Magazine had previously established it as the genus *Microdon*, which has been adopted in both Meigen's works upon the *Diptera*, and De Geer having long since given it the specific name of *Apiformis*, following the principle upon which this work has been hitherto conducted, the original names have been restored.

The genus *Microdon*, although decidedly distinct, is nearly related to, and, according to Meigen, connects *Ceria* and *Chrysotoxum*. I have to regret my inability to speak with certainty concerning the palpi, until recent specimens can be obtained; for after a careful examination of two examples of this rare insect, I could only discover the portion represented in the plate at fig. 1 *f*, which I suspect to be some extraneous substance, rendered still more probable by Meigen being silent upon the subject, and his figure only exhibiting the labium, tongue, and lip.

Meigen enumerates 4 European species; but that figured is the only one that has been found in our island, and which I believe was unknown to us until Mr. D. Bydder discovered it in the New Forest, where, however, it does not appear to be very common. I had the pleasure of seeing Mr. Dale beat one out of an oak in the beginning of June, near Lyndhurst, Hants; and he informs me that he has taken 3 off grass, and the birch, on the borders of Dorsetshire. It is common in the interior of France, upon heaths and in forests. It appears to be a long-lived insect, by the mutilated state of the wings of most specimens when taken, unless their shortness and strength assist in their destruction, or it may be occasioned by the short and frequent flights of the insect.

Lamium purpureum (Red Archangel) is the plant figured.



NECROPHORUS GERMANICUS.

ORDER Coleoptera. FAM. Silphidæ *Leach*. Necrophagi *Lat*.

Type of the Genus Silpha Humator Linn.

NECROPHORUS *Fab., Oliv., Lat.* Silpha *Linn., Marsh.* Dermestes *Geoff.* Necrophagus *Samouelle.*

Antennæ inserted before the eyes, geniculated, pilose, 10-jointed, 1st joint long, curved, clavate, 5 following short, gradually thickening from the 1st, the 4 last forming a perfoliated club, the joints being horny externally, membranaceous internally, the terminal joint somewhat acuminate (f. 6).

Labrum transverse, deeply emarginate, thickly ciliated, with a tuft of long hairs arising near the apex of each lobe (1).

Mandibles strong, exerted, curved, acute, entire; internal edge beneath clothed with thick hair (2).

Maxillæ corneous, lobes coriaceous, internal one thickly ciliated, external with a transverse suture, the terminal portion being dilated and very hairy: *Palpi* short 4-jointed, 1st joint small, 2nd and 3rd clavate-truncate, 4th cylindric-ovate (3).

Mentum transverse somewhat ovate: *Palpi* composed of 3 joints of nearly equal length, 2nd robust, clavate-truncate, 3rd cylindric somewhat ovate-truncate: *Labium* long bilobed, lobes divaricating, ciliated with long hairs (4).

Head large. Eyes reniform. Neck distinct. Thorax somewhat orbicular, rounded behind. Scutellum large triangular. Elytra shorter than the abdomen, truncated at the apex, external margin inflected, not channelled or keeled. Wings 2, very long. Abdomen long quadrate. Tibiæ spurred. Tarsi 5-jointed, anterior dilated in the males (5 a fore leg of male).

Obs. the dissections are made from *N. vestigator* *Herschel*.

GERMANICUS *Linn. Syst. Nat.* 2. 569. 1. *Fab. Ent. Syst.* t. 1. pars 1. p. 246. n. 1. *Marsh. Ent. Brit.* p. 113. n. 1.

Intense black, shining. Club of antennæ velvety black. Mouth, centre of clypeus, cilia of anterior margin of thorax and of the anterior tarsi of the males aureous. Eyes ochraceous, speckled with black. External margin of elytra ferruginous. Head rather minutely punctured, except in the centre. Thorax considerably dilated anteriorly, very delicately punctured, the lateral and posterior margins deeply punctured, an obsolete channel down the centre. Scutellum minutely punctured. Elytra rather coarsely punctured, with 3 plain longitudinal lines on each. Shoulders and sides pubescent. Abdomen punctured, segments and sides ciliated. Pectus pubescent with piceous hairs.

In the Cabinet of Mr. Vigors.

THE *Silphidæ* principally live upon dead animals, which render them of great utility in removing what might otherwise become offensive and noxious to mankind; and none are more powerful or active agents in this important service than the *Necrophori*, both in the larva and perfect states. The accounts of French writers respecting the *Silpha Vespillo* (the Grave-digger) are extremely curious and interesting: four or five of them, on finding a mole, frog, mouse, or other small animal, if it be not in a convenient place remove it to one that is more so, when they insinuate themselves under it, and clearing away the earth beneath, it is soon concealed from the eye, and in the course of 48 hours is absolutely buried to the depth of a foot. This operation is performed that the eggs, which are afterwards deposited there by the females, may have food when they hatch, to sustain them until they become pupæ; before which period it is completely devoured by them, neither the bones nor the skin sometimes being left.

Some species of *Necrophori* are also found in Fungi: they are all to be met with during the spring and summer. They have exceedingly long wings, and carry their elytra in flight erect; they are very subject to be infested with acari, with which sometimes they are completely covered.

N. Germanicus is very rare in this country: the fine male figured from the cabinet of N. A. Vigors, Esq., was taken many years back in Norfolk by the Rev. J. Burrell, to whose zeal we are indebted for a knowledge of many of our rarest insects. It may be at once distinguished from *N. Humator*, not only by its size and form, but by the club of its antennæ being black, by the orange-coloured clypeus, and the furruginous margin of the elytra.

The genus may be thus divided:—

A. Posterior trochanters without spines: Tibiæ straight.

* Thorax somewhat quadrate orbicular.

1. *Mortuorum* Fab. *Donovan's Brit. Ins.* v. 15. t. 537. f. 2.

2. *Vestigator* *Herschel Magazin fur Insectenkunde*, v. 6. p. 274.

3. *Humator* *Oliv. Don. Brit. Ins.* v. 15. t. 537. f. 1.

** Thorax dilated anteriorly.

4. *Germanicus* *Linn.*

5. *Anglicus* *Leach's MSS.*—*Anglicanus* *Samouelle*—*Britannicus* *Wilkin's MSS.*

B. Posterior trochanters spined: Posterior Tibiæ bent.

6. *Vespillo* *Linn.* *Spinosis* *Kirby's MSS.*—*Don. Brit. Ins.* v. 1. t. 23.

Silpha bimaculata of the *Entomol. Trans.* (tab. 2. f. 1.) is considered, I believe, to be only a variety of *N. Humator*.

Agaricus coccineus *Bulliard*, is figured with the insect.



THYATIRA BATIS.

The Peach-blossom Moth.

ORDER Lepidoptera. FAM. Noctuælitæ *Lat.* Noctuidæ
Leach.

Type of the Genus Noctua Batis Linn.

THYATIRA *Och.* Noctua *Linn., Fab., Haw.*

Antennæ alike in both sexes, rather short, composed of numerous transverse joints, clothed with scales above, with short hairs beneath (fig. 1 a).

Labrum distinct, short, triangular (2 a).

Mandibles distinct, short, rounded, ciliated with a few bristles (2 b).

Maxillæ as long as the antennæ, with a few hairs at the base, covered with projecting glands from the middle to the apex (3).

Labial Palpi obliquely porrected, distant, 3-jointed, longer than the head, covered with long hairy scales, the terminal joint clothed with short close scales only (4); 1st joint short, 2nd long attenuated, 3rd as long as the 1st, slender, conical (4 a, the scales being removed).

Head transverse. Thorax clothed with long light scales, forming a transverse crest. Abdomen rather long and slender, with a small tuft of scales on the back near the base. Wings deflexed, superior, slightly hooked at the posterior angle, inferior wings large. *Tibiæ*; anterior, with a compressed spine on the inside; middle and posterior tibiæ with a pair of spurs at their apex, one being very small, the posterior pair having also 2 spurs below the middle.

Larvæ with 6 pectoral 8 abdominal and 2 anal feet.

BATIS *Linn. Syst. Nat.* 2. 836. 97. *Fab. Ent. Syst.* v. 3. pars 2. p. 30. n. 73. *Haw. Lep. Brit.* p. 245. n. 254.

Head, antennæ and thorax pale brown, the latter with 4 transverse rosy bands. Superior wings brown, darkest towards the base, with several crenated dark transverse lines, a large flesh-coloured spot at the base, clouded with brown, 2 large somewhat oval rosy spots approximating, one at the apex the other near the costa, another of the same size at the posterior angle, with a brown spot in the middle, and 2 smaller rosy spots, one upon the posterior the other upon the interior margin. Inferior wings fuscous-ochraceous, with a pale line near the centre parallel to the margin. Abdomen of the same colour.

In the Author's and other Cabinets.

THIS moth, which when perfect is one of the most lovely our island produces, is occasionally met with in the evening, flying

about the skirts of woods, from the middle of June to the middle of July : the caterpillar (which is copied from Roësel) is remarkable for its gibbosity, and the bifid tubercle upon the back, towards the head ; it feeds upon the bramble.

Noctua derasa Linn. (figured in Donovan's *Brit. Ins.* v. 7. p. 223. f. 1.), the other British species comprised in the genus *Thyatira* is also very beautiful, and of more frequent occurrence than *T. Batis* ; it is found in the same situations, from the beginning of July to the 1st week in August.

The plant figured is *Rubus fruticosus* (Common Bramble).



BASSUS CALCULATOR.

ORDER Hymenoptera. FAM. Ichneumonidæ *Lat., Leach.*

Type of the Genus B. Calculator Fab.

BASSUS *Fab.* Ichneumon *Fab., Lat., Jur., Panz.*

Antennæ setaceous, more slender in the males than in the females, inserted towards the top of the face, distant, many-jointed, 1st joint robust curved, 2nd small turbinate, 3rd longer than the 1st, the following decreasing in length to the apex, covered with short coarse hairs (fig. 1).

Labrum transverse, slightly narrowed before, with a triangular, membranaceous, hairy tongue, projecting from beneath (2).

Mandibles very thin coriaceous, small, somewhat elongated, acute, bifid, hairy externally (3).

Maxillæ membranaceous, internal lobe covered with short hair at the extremity, external lobe rounded, ciliated: *Palpi* pilose, composed of 5 long joints, 2 first joints robust, 3rd the longest, 4th and 5th slender (4).

Mentum nearly quadrate-elongate (5 a): *Palpi* hairy, 4-jointed, 2 first joints more robust than the two following (b): *Labium* nearly cylindric entire, divided down the middle above (c).

Head transverse, as broad as the thorax. Ocelli 3. Thorax ovate, elevated, long, somewhat attenuated anteriorly. Abdomen scarcely petiolated, not longer than the head and thorax, oblong, somewhat depressed, shining, composed of few joints in the males; more cylindric, somewhat arcuated in the females (6). Oviduct exerted, as long as the body. Wings alike in both sexes, superior with one narrow oblique marginal cell; submarginal cells 3, 1st incomplete, 2nd very minute, 3rd very large, discoidal cells 2, of nearly equal size, inferior one incomplete; stigma large; inferior wings small linear. Legs; anterior small, posterior long robust. Tibiæ spurred. Tarsi 5-jointed, basal joint very long, 4th minute. Claws small simple (8 a fore leg).

CALCULATOR *Fab. Ent. Syst. suppl. p. 225. n. 131. Syst. Piez. p. 98. n. 21. Calculatorius Panz. Faun. Germ. 83. tab. 13. fem.*

Black, shining. Thorax, scutellum, 4 anterior legs and trophi brick-colour: metathorax deeply punctured; basal and 2nd segments of abdomen deeply and longitudinally channelled: apex of posterior thighs ferruginous, base of posterior tibiæ dirty white. Wings very pale-fuscos, iridescent: stigma and nerves brown: anterior coxæ in the male, brick-colour.

In the Cabinet of the Author.

NEGLECTED as this extensive family has been, it is not to be wondered at that we are but ill-acquainted with the affinities and economy of many of the groups composing it: as every fact is therefore rendered the more valuable, I have the greater pleasure in presenting my readers with the present species, which I captured in the New Forest about a mile to the north of Lyndhurst. We were resting ourselves about noon in the early part of September 1822, whilst the sun shone very powerfully, when I observed one of these pretty insects flying over the flat surface where a tree had been felled, upon which it settled; and shortly after two others appeared. They all hovered over the block and at intervals lighted upon it, but I could not observe that the female deposited any eggs; and knowing it to be a rare insect, new to Britain, I was fearful of losing it, which prevented me from further observing its operations. I consider myself most fortunate in capturing both sexes, as the males of this family are very seldom known; and Panzer having only figured the female, the male is here represented in preference, and the body of the female is given at the bottom of the plate.

Latreille's genus *Ichneumon*, comprising most of the genera into which Fabricius had divided it (although very imperfectly), must be considered as a family, since it is impossible to include insects in the same genus so widely different as *Peltastes* (plate 4.) and our present subject, *Bassus*; and although the long exserted ovipositor gives it the appearance of a *Pimpla*, it will be found to be much more nearly allied to *Microgaster* and *Agathis*.

There are probably about 15 British species in our cabinets allied to that figured, but I think only 4 or 5 of them perfectly agree with our type, and I believe none of their names have yet been ascertained.

Vaccinium Myrtillus (Bilberry), growing in abundance where the insect was taken, has been selected for the plate.



CYDNUS DUBIUS.

ORDER Hemiptera. FAM. Pentatomidæ *Leach*. Corisiæ *Lat*.

Type of the Genus Cimex bicolor Linn.

CYDNUS *Fab., Leach*. Cimex *Linn., Fab., Scop., Schrank, Wolff*.
Pentatoma *Lat*.

Antennæ exerted, inserted under the margin of the head before the eyes, nearly filiform, or slightly clavate, longer than the head, 5-jointed, the 1st and sometimes the 2nd joints very short, the 3 following long, nearly of equal length, and more robust (fig. 4).

Rostrum inflected, distinctly 4-jointed; the 2nd and 3rd joints somewhat the longest, terminal joint slightly hairy (2).

Labrum very long, subulate, received into a canal in the basal joint of the rostrum (3).

Mandibles and
Maxillæ } like setæ passing through the rostrum.

Head obtuse, immersed quite up to the eyes in the thorax. Clypeus with a notch in the centre of the margin. Thorax narrowed anteriorly, with the angles rounded. Abdomen ovate, somewhat orbicular, depressed, margined. Scutellum large, not covering the wings or elytra. Elytra coriaceous, membranaceous at the apex, crossing each other horizontally. Tibiæ robust, spinulose, not notched. Tarsi 3-jointed, middle joint minute (6 a fore leg).

DUBIUS *Scopoli Entomologia Carniolica*, p. 121. n. 355. Albo-marginatus *Schrank Austr. n.* 531.

Dark blue, slightly inclining to green and purple, lateral margins of thorax and external margin of elytra pale straw-colour: margin of abdomen alternately black and straw-colour. Head, thorax and scutellum coarsely punctured; elytra more thickly and minutely punctured.

In the Cabinets of the British Museum and Mr. Stephens.

FABRICIUS established this group as a genus in his *Systema Rhyngotorum*, but Latreille has only made it a principal division of his genus *Pentatoma*. Dr. Leach by some accident has stated in his characters of the genus *Cydnus*, that the 2nd

joint of the antennæ is longer than the 3rd; an error into which he was probably led by his having examined *Pentatoma Oleracea*, which he gave as the type of the genus *Cydnus*, but which in reality belongs to the 3rd division (C.) of *Pentatoma* (vide folio 20). The relative proportions of the joints of the antennæ are most important characters here; and it so happens that the 2nd joint is never longer, but generally shorter than the 3rd; and it is not so in *Pentatoma*, as will be seen by referring to plate 20, except in division A, which comes nearest to *Cydnus* in this respect; and there it arises from the 3rd joint being the longest of all, which is not the case in *Cydnus*: the absence of the notch in the anterior tibiæ, and all the legs being spined, are other very essential characters.

There are 7 or 8 British species of this genus: viz. 1. *C. bicolor* L.; 2. *morio* L.; 3. *marginatus*? 4. *biguttatus* L.; 5. *albo-marginatus* F.; 6. *dubius* Scop.; and a species in the cabinet of Mr. Stephens, larger than *C. morio*, but closely allied to it. The habits of these insects are like those of the kindred genera: several of the species are common. They are found upon plants in June, and frequently are to be seen in gravel-pits, into which they have accidentally fallen. Of the species figured I have seen but 2 specimens; one in the British Museum, from which the drawing was made, the other (which is of a duller colour) is in Mr. Stephens's cabinet.

Fabricius in his synonyms to *Cydnus morio*, includes figure 11 of the 57th table of Schæffer's *Icones*, which is a blue insect with a pale margin, whereas, to agree with his description it ought to be entirely black, with the exception of the rufous tarsi. There can be little doubt but this figure represents the *C. dubius* of Scopoli, and as such it is named by Panzer in his *Systematic Nomenclature* of Schæffer's *Icones*, page 75.

The plant figured is *Arabis turrita* (Tower Wall-cross), communicated by Professor Henslow, from the walls of Trinity and St. John's Colleges, Cambridge.

THE genus *Licinus* is one of the valuable additions made to our Fauna since the publication of the "*Entomologia Britannica*," and I am happy in the opportunity of first recording it as a native of Britain.

Although *Licinus* has many characters in common with *Panagæus* and *Badister* (which last was formerly considered by Latreille to be a *Licinus*), it is readily distinguished from the former by its different habit, as well as by the obtuseness of the mandibles, and the absence of the emarginate process in the centre of the mentum, so common to the *Carabidæ*: from the latter it differs in having the posterior angles of the thorax rounded, in the emarginate elytra, in the triangular form of the terminal joint of the external maxillary palpus, and in having only 2 joints of the anterior tarsus dilated.

The species selected to be figured was taken by my brother the 5th November 1810, upon Mousehold Heath, near Norwich, under a stone, with numerous fragments of other small *Carabidæ*; from which we are led to imagine that it feeds upon other insects, although the mandibles do not appear to be so well adapted to such uses as those of most of the *Carabidæ*. Mr. Sparshall found another specimen the 15th May the following year upon a bank in the same neighbourhood; and several were found afterwards by the late Mr. Griffin in a gravel-pit not far from the same city. It has also been taken I believe in Norfolk by the Rev. T. Skrimshire, and in Yorkshire by Mr. Watson; and from the females having dull elytra, that sex I understand has been called by the Rev. Mr. Kirby in his MSS., *Carabus Watsonii*.

Carabus silphoides Fab. (Sturm's *Deut. Faun.* tab. 74. f a) is another species of this genus not ascertained to be British until I took one running upon the Castle-hill at Dover the middle of August 1820: there are, however, a pair in the British Museum that Dr. Leach purchased in a collection formed at Dover. It inhabits also Italy, the South of France, and other warm countries of Europe.

Carabus cassideus Fab. (Clairville's *Ent. Helv.* tab. 16. f a), *emarginatus* Oliv. and Lat., the species from which the dissections were made, is also believed to be a native of Britain, from a specimen in our Museum which is said to have been taken here: it is certain that our climate is more likely to produce this species than the last, since it is not only found in the South of Europe, but Clairville informs us even in Prussia, under stones.

Anagallis arvensis (Scarlet Pimpernel or Poor-man's Weather-glass) is figured with the insect.



CHARICLEA DELPHINII.

The Pease-blossom Moth.

ORDER Lepidoptera. FAM. Noctuidæ *Lat., Leach.**Type of the Genus Noctua Delphinii Linn.*CHARICLEA *Stephens's MSS.* Noctua *Linn., Fab., Haw.**Antennæ* long setaceous, composed of numerous short joints covered with scales above, hairy beneath, 1st joint large, concealed by long hairy scales (1 a, the basal and a few following joints).*Labrum* and *Mandibles* attached to the clypeus.*Maxillæ* nearly as long as the body, with a few glands like tentacula towards the apex (3).*Labial Palpi* rather short, curved upward, covered entirely with long hairy scales (4), 3-jointed, 1st joint long cylindric, 2nd shorter somewhat ovate, 3rd small ovate (4 a, the scales being removed).*Head* trigonate viewed from above. *Abdomen* without tufts of scales, apex of the male slightly bifid. *Wings* deflexed, superior somewhat lanceolate, inferior rather small. *Cilia* very long. *Legs* clothed with soft hair, anterior rather short. *Tibiæ*, anterior very short, trigonate, with 2 horny naked spines at the apex, the internal one being very long and curved. *Tarsi* 5-jointed, armed with rows of spines beneath, 1st joint long. *Claws* minute bifid. *Pulvilli* distinct, (8 a fore leg).*Caterpillars* with 6 pectoral, 8 abdominal, and 2 anal feet.DELPHINII *Linn. Syst. Nat.* 2. 857. 188. *Fab. Ent. Syst.* v. 3. pars 2. p. 90. n. 267. *Haw. Lep. Brit.* p. 248. n. 261.

Pale ochraceous, inclining to fuscous. Superior wings with a large trilobed fascia at the base, and a narrower one towards the posterior margin rosy-lilac, edged with brown; the centre of the wing forming a bar variegated with pale rosy-lilac, broadest at the costa, margins described by a sinuated double line; towards the top of this fascia are situated 2 spots, that nearer the base small, pale, circular; the other nearer the extremity, large somewhat oval, lilac-colour, with a line extending from it to the interior margin; posterior margin pale with a dark line next the cilia. Inferior wings with a transverse spot near the middle, and a fimbria fuscous, posterior margin rosy with a dark line next the cilia.

In the Cabinet of Mr. Stephens.

MR. STEPHENS has named this genus, after a beautiful Nymph, *Chariclea*. There can be no doubt of its affinity to *Cucullia* (pl. 45.), not only from the habit of the moth, but also from the similitude of its larvæ to those of *C. Scrophulariæ* and *Verbasci*: the tufted basal joint of the antennæ, as well as the form and relative proportions of the joints of the palpi, also accord extremely well with those of *Cucullia*. There are, however, decided differences to be found; the maxillæ, wings and abdomen are much shorter in *Chariclea*, the palpi are completely concealed by scales, the underside of the antennæ is very hairy, and the anterior tibiæ are shorter than the basal joint of the tarsi; but the most valuable character I have been able to detect, is the two naked horny spines attached to the extremity of the anterior tibiæ, a conformation which I have never seen in any other species. Upon referring to plate 45 it will be seen that *Cucullia* has only a flat internal spine, like most of the *Noctuadæ*.

This charming moth is no less esteemed for its rarity than for its lovely colours; the specimens in Mr. Stephens's cabinet, as well as those in the British Museum, are from Windsor; and it has once been taken by the late Mr. Jones in his garden at Chelsea. Its favourite food is the larkspur: it therefore ought to be met with in Cambridgeshire and districts where that plant abounds in a natural state. It is, however, probable that it is one of those insects, which, if not periodical, appears in very small numbers; which opinion is strengthened by the fact that it is very rare upon the Continent, where it fetches very high prices; and we are informed by Mr. Haworth, that the great patroness of Natural History, the late Duchess of Portland, possessed only a wing of the moth found in a spider's-web at Bulstrode. In Wilks's days (1773) it was bred, he says, by the Honourable Mrs. Walters, and by Nathaniel Oldham, Esq.

The caterpillar is copied from an admirable figure in Hübner's scarce and valuable work. The moth appears in June and July.

Delphinium Consolida (Wild Larkspur) is figured in the plate; for specimens of which I am indebted to Professor Henslow.



July 1-18.

MUTILLA EPHIPIUM.

ORDER Hymenoptera. *FAM. Mutilladæ Lat., Leach.

Type of the Genus *Mutilla* Europæa Linn.

MUTILLA Linn., Fab., Lat., Leach, &c.

Antennæ distant, somewhat fusiform, much longer than the head, 13-jointed in the males, 12-jointed in the females, 1st joint long, hairy, incurved, not receiving the 2nd, which is small, cup-shaped, the 3rd obconic, 4th and following nearly of equal length (fig. 1). *Labrum* nearly concealed by the clypeus, transverse, coriaceous, ciliated, and producing a few long bristles near its base (2). *Mandibles* exerted, long, narrowed near the base, tridentate (3). *Maxillæ* long, terminal lobe minute, rounded, ciliated, membranaceous: *Palpi* very long, hairy, 6-jointed, 1st joint bent, 2nd dilated, remainder somewhat long, the last slender cylindric (4). *Mentum* corneous, trigonate elongated (5 a): *Palpi* as long as the mentum, to the anterior angles of which they are attached, pubescent, 4-jointed, 1st joint bent, clavate, 2nd and 3rd compressed, the latter somewhat rhomboidal, 4th long slender cylindric (b): Lip coriaceous, very short, hollow, completely concealed behind the mentum.

Clypeus produced, emarginate. Head globose. Ocelli 3 in the males alone. Thorax of the male very convex with a transverse suture and scutellum; of the female cubical without transverse sutures and scutellum. Abdomen attached by a short peduncle, ovate, 2nd segment large, somewhat campanulate. Wings of males pubescent, stigmata celluliform, marginal cell remote from the apex, submarginal cells 3. Females apterous; armed with a sting. Anterior legs short, with a long, compressed, membranaceous spine at the apex of the tibiæ, the 4 posterior tibiæ spurred (8 a fore leg).

EPHIPIUM Fab. Ent. Syst. v. 2. p. 370. n. 18. mas.—rufipes. Fab. Ent. Syst. 2. 372. 26. fem.

Male black, shining, pilose with long whitish hairs. Head somewhat minutely punctured. Thorax and scutellum brick-colour, anterior margin black extending in the centre as far as the suture, strongly punctured; metathorax very coarsely punctured. Abdomen strongly punctured. Wings stained yellowish fuscous with alternate fascia of red and green next the posterior margin.—Female black glossy. Head thickly punctured. Neck, thorax, peduncle and basal joint of abdomen brick-colour, thorax coarsely punctured. Abdomen minutely punctured, rufous at the apex and the margins of the segments, which appear silvery from the denseness of the hair, as well as a spot on the 2nd segment. Antennæ and legs rufous, the former fuscous towards the apex.

In the Author's Cabinet.

ALTHOUGH the *Mutilladæ* bear considerable resemblance to the *Formicadæ* their economy is totally different, the latter living in societies exhibiting males, females, and neuters, which last only are apterous; the former being solitary, having no neuters, the males only being furnished with wings. It is unnecessary to go any further into the differences of the two families. The female *Mutillæ* want the little eyes upon the crown of the head, as well as the wings with which the males are furnished; and the eyes and thorax are very differently formed. Jurine has justly observed "What is the object of Nature in establishing such disparities, and where is the utility of it? These are problems that we cannot resolve, because of our ignorance of the history of these insects, but which well deserve the attention of naturalists." It is well known that they inhabit sandy districts, and it is probable the females form their nests and deposit their eggs in such situations, which employment would render wings and ocelli of little use; whereas the males, which may be less numerous than the other sex, are supplied with wings to enable them to go in search of the females, as is frequently the case amongst the *Lepidoptera* and other orders.

We are able to record at present only three species of this beautiful genus as inhabitants of Britain: 1. *M. Europæa* Linn.; 2. *calva* Fab.; 3. *Ephippium* Fab. The first is common in sandy lanes and foot-paths in June,—it is figured in Donovan's *Brit. Ins.* v. 6. p. 212.; the second, (in the cabinet of Mr. Stephens,) is figured in Coquebert's *Icon. Ins.* tab. 16. f. 10. Latreille and many other entomologists have long suspected *M. Ephippium* and *M. rufipes* to be the sexes of the same species, since we only know the males of the one, and the females of the other: as such I have ventured to give them, having found both insects in this country,—the female in a gravel-pit, and the male flying over a sunny bank near Shooter's-hill, Kent, the 15th June 1822.

Bryum subulatum (Awl-shaped Screw-moss) is figured in the plate.



$\cup \{d\} \subset \mathcal{C} \subset \dots \cup \{c\} \subset \mathcal{C}$ K82.5

TABANUS ALPINUS.

ORDER Diptera. FAM. Tabanidæ *Leach.* Tabanii *Lat.*

Type of the Genus Tabanus bovinus Linn.

TABANUS *Linn., Fab., Lat., Schr., Leach, Meig., &c.*

Antennæ inserted in front of the face, porrected, approximating as long as the head, 7-jointed, 1st joint clavate-truncate, 2nd small cup-shaped, 3rd large compressed, lunate-truncate, 3 following small quadrate, 7th slender attenuated (3).

Labrum long, lanceolate, grooved margined, acute (b).

Tongue long, lanceolate, very acute, margins sharp (c).

Mandibles long, lanceolate, very smooth, and acute, thickened externally from the base (d).

Maxillæ long, slender, acute (e).

Palpi attached to the base of the maxillæ, exserted, villose, incurved at the base, 2-jointed, 1st joint short, cylindric, with long hair externally, 2nd joint long robust, short and capitate in the males, somewhat attenuated in the females (f).

Lip large, hairy, bilobed, each lobe hollow externally (g).

Mentum elongate cylindric, pilose (h).

Head transverse, somewhat hemispherical. Proboscis exserted as long as the head. Eyes contiguous in the males, approximating in the females. Ocelli none. Thorax large oval-quadrate. Scutellum without spines. Abdomen cylindric-conic in the males, broad depressed in the females. Wings divaricating, with 3 discoidal cells, sometimes having a short branch in the submarginal cell. Squamulæ large. Halteres distinct. Legs strong. Tarsi 5-jointed, 1st joint long, 3 following short, cordate, 5th obovate, truncate. Claws simple acute. Pulvilli trilobed, very distinct (8 tarsus of a fore leg).

Obs. the dissections are from a female. Fig. 1 represents the trophi viewed from above, fig. a being the clypeus: B, the same in profile: C, the lip: D, the maxillæ and a palpus: E, a mandible: F, the tongue and labrum. The corresponding small letters denote the same organs in all the figures.

ALPINUS *Schrank Fauna Boica.* 3. 2534.—*Fulvus Meig.* 2. 61. 40.

Female. Black sparingly clothed with short aureous hairs. Face and Palpi pale ochraceous, with one black minute spot between the eyes, which as well as the scutellum are fuscous-ochraceous, the former with a slight rosy tinge. Abdomen with a ferruginous spot on each side covering one third of the 2nd segment from the base and extending over part of the 1st segment, edges of the segments appearing aureous with pubescence. Wings ochraceous at the costa and base. Antennæ ferruginous. Halteres ochraceous. Legs ferruginous. Anterior tarsi and apex of tibiæ black, posterior tarsi fuscous towards their extremities.

In the Cabinets of Mr. Stephens and Captain Blomer.

THE terrors created amongst cattle by the *Tabani* (called by the Greeks *Æstrus*, by the Romans *Asilus*) have been recorded by the ancient poets; modern naturalists have unfortunately applied these terms to insects of very different habits, our *Æstri* appearing to have been totally unknown to them.

In this country they are called *the Breeze*. Their flight is easily detected by the vibration of their wings, which greatly terrifies and agitates cattle, especially horses and horned cattle, the hides of which they are able to pierce, making a wound that must be very painful, when we consider the compound apparatus with which it is made. The dissections of these parts are more elaborate than usual, no less for the information of those who may feel interested in the history and curious structure of this well known genus, than for the instruction they afford to the student from the completeness of every part. The lip (g), composed of 2 muscular hollow lobes, enables the insect, I imagine, to attach itself firmly to any object it is desirous of attacking: the parts marked b, c, d, and probably e, are forced into the object in a compact body, the mandibles assisting principally in this operation, being most exquisite lancets, one of which is figured separately at E, if the maxillæ (e) be admitted into the wound, from their elasticity, it is probable, for the purpose of dilating it. The palpi (f) are useful in dividing the hair of the animal, and assist in determining the blood to the spot; and the lip and tongue (b and c, highly magnified at F, at which point is the pharynx) are grooved, and when united form a tube for the blood to pass through: the former appears to have a gland at the apex, which may assist in drawing it up.

There are 11 or 12 species of this genus in Britain, and we may expect to discover many more, as Meigen has described 42. We have, 1. *T. bovinus* L.; 2. *autumnalis* L.; 3. *signatus* Meig.? 4. *micans* F.; 5. *tropicus* L.; 6. *solstitialis* Meig.; 7. *luridus* Fallen; 8. *montanus* Meig.; 9. *paganus* F.; 10. *rusticus* L.; 11. *alpinus* Schr. The last species being new to Britain has been selected for the drawing. Two females were taken last autumn by Captain Blomer near Bideford, North Devon. Schrank having first given it the name of *alpinus*, Meigen's name has been here dropped. The *Tabani* are all to be found from June to September in places inhabited by cattle, viz. marshes, meadows, heaths and forests, frequently settling upon gates and paling, the males upon flowers: those of *T. rusticus* I have found in gardens.

The plant is *Matricaria Chamomilla* (Chamomile Feverfew).



GYRINUS BICOLOR.

ORDER Coleoptera. FAM. Gyrinidæ *Leach*. Gyrinites *Lat*.

Type of the Genus G. Natator Linn.

GYRINUS *Linn.*, *Fab.*, *Oliv.*, *Lat.*, *Marsh*, *Gyll.*, *Leach*, &c.

Antennæ inserted beneath the superior portion of the eyes, at the side of the clypeus, very short, rigid, porrected, 9-jointed; 1st joint large globose, produced on the external side in a triangular compressed, ciliated lobe; the other joints forming a clavate, cylindric, arcuate mass arising from the upper side of the 1st joint, basal joint pedunculate, 3rd and 6 following transverse, terminal joint semi-oval (f. 6).

Labrum rigid, exserted, transverse, convex, rounded before and ciliated (1).

Mandibles scarcely exserted, strong, corneous, very much bent, apex dilated transversely, bidentate, with a tooth on the internal edge towards the base (2).

Maxillæ acute, ciliated with rigid bristles, a palpiform, exarticulate bent lobe, on the internal side, being a modification of the internal palpus of the Dyticidæ. *Palpi* incrassated, 4-jointed, 1st joint small, 2nd and 3rd somewhat cup-shaped, 4th large ovate (3).

Mentum large, corneous, somewhat oval, bilobed, sides semi-orbicular. *Palpi* small, 3-jointed, 1st joint minute, 2nd clavate, 3rd robust, conical. *Lip* corneous, small, quadrate, shorter than the mentum (4).

Head large, somewhat trigonate. Eyes 4, circular, 2 above and 2 beneath the antennæ. Thorax short, transverse, sinuated before and behind. Elytra with the margins acute. Scutellum minute. Wings 2. Pectus and Abdomen carinated in the middle. Anterior feet formed for walking, elongate, geniculate, porrect; four posterior short, compressed, membranaceous, formed for swimming, external edges fimbriated with compressed hairs. Thighs and Tibiæ short, trigonate in the 4 posterior legs, the hinder having 2 little spurs at the internal angle. Tarsi 5-jointed, the terminal joint being the longest in the anterior pair, compressed and produced internally in the 4 posterior pair, the terminal joint being very minute. Claws 2, long in the fore feet, minute in the others (5 a fore leg, 5* a hind leg).

BICOLOR *Fab. Ent. Syst. v. 1. pars 1. 202. 2. Gyll. 1. 142. 2.*

Elongatus Marsh 100. 4.

Long, narrow, cæruleous-black, shining. Thorax with a transverse impression before the middle. Elytra very long, appearing attenuated posteriorly, truncated, rounded, having 11 finely punctured striæ on each, inflected margin ferruginous. Suture æneous. Abdomen villose above, black beneath, ferruginous at the apex. Mouth and centre of pectus ferruginous. Legs ochraceous. Male much narrower than the female.

In the Author's and other Cabinets.

THE curious structure of the auriform antennæ of this genus, agreeing considerably with those of *Parnus* figured in the next plate, induced Latreille to form them into a family which he called *Otiophori*, in his *Genera Crustaceorum*, &c.; but he subsequently brought back *Gyrinus* to follow the *Dyticidæ*, and left *Parnus* with his *Byrrhii*. Gyllenhal, following Latreille, placed these genera also together. Mr. W. S. MacLeay, in the first part of *Annulosa Javanica*, having noticed Latreille's error in placing them together,—thereby, as he justly says, “confounding a relation of analogy with one of affinity,”—I have thought it a good opportunity of introducing these genera together, to prove that there is no affinity beyond the Linnean system, that of the antennæ, the form of the legs and the structure of the mouth being totally different.

The *Gyrini* live in society, and many of them are extremely common in our ditches and rivers the whole of the spring and summer, where they must have attracted the notice of every lover of nature, by the rapid and curious evolutions which they perform during fine weather upon the face of the water (from whence their English name of Whirl-wigs), diving below the surface when alarmed, and carrying down with them a bubble of air appearing like quicksilver, as has been remarked by Fabricius. In dull and cold weather they secrete themselves under the banks, or at the bottom of the water: most of them have a fetid smell.

The following species have been detected in this country, viz.

1. *G. æneus* Leach.
2. *marinus* Gyll.
3. *minutus* Fab.—*bicolor* Oliv.—Kirbii Marsh.
4. *Natator* Linn.
5. *bicolor* Fab.—*elongatus* Marsh.
6. *villosus* Fab.—Modeeri Marsh.

It is likely that this last species will be formed into a genus, as the convex form, villose and punctured surface, and projecting labrum indicate a different economy: indeed I suspect that this species is not gregarious.

The plant figured is *Parnassia palustris* (Grass of Parnassus).





Phyllotreta vittula (L.)

PARNUS IMPRESSUS.

ORDER Coleoptera. FAM. Parnidæ *Leach.* Byrrhii *Lat.*

Type of the Genus P. prolifericornis Fab.

PARNUS *Fab., Marsh, Leach.* Dermestes *Geoff.* Dryops *Oliv., Lat.*

Antennæ inserted beneath the eyes and lodged in a little cavity near their internal edge, shorter than the head, woolly, 9-jointed; 1st joint somewhat cylindric, 2nd large, very much produced on the internal side; the other 7 joints forming a serrated mass, attached to the outside near the base of the 2nd joint, by which they are frequently concealed; 1st joint attached by a small peduncle, the 5 following somewhat serrated, terminal joint semi-orbicular (f. 6).

Labrum exserted, coriaceo-membranaceous, transverse, slightly emarginate, sides rounded, ciliated (1).

Mandibles concealed, corneous, strong, angulated at the base, apex bidentate with two smaller teeth just below the apex on the internal edge which is concave, a compressed membranaceous lobe near the middle, rounded and corneous above, ciliated externally (2).

Maxillæ bilobed, internal lobe slender, somewhat acute, articulated near the apex, ciliated internally; external lobe large, somewhat quadrate-ovate, with a spine at the internal angle, ciliated externally. *Palpi* short, robust, 4-jointed, 3 first joints hairy, basal joint minute, 2nd and 3rd cup-shaped, 4th long, ovate-conic (3).

Mentum transverse, quadrate, narrowed before, anterior angles produced. *Labium* large, somewhat quadrate, hairy, angles rounded. *Palpi* short, robust, 3-jointed; 1st joint minute. 2nd clavate, 3rd oval (4).

Head concealed up to the eyes, somewhat triangular above. Eyes orbicular. Thorax transverse quadrate, sides thickened, margined, anterior angles produced. Scutellum triangular. Abdomen somewhat cylindric or elliptic, convex, margined. Sternum produced behind in the centre into an acuminate lobe. Legs alike. Thighs channelled beneath. Tibiæ cylindric, unarmed. Tarsi filiform, 5-jointed, first 4 joints small, 5th long, clavate. Claws long.

IMPRESSUS nob.

Olivaceous-brown, minutely punctured, villose. Thorax with a fovea on each side, near the base, equidistant from the margin and each other. Elytra with 7 or 8 obscure punctured striæ on each. Serrated mass of antennæ, thighs at their base, apex of tibiæ, tarsi, and claws, ferruginous. Beneath ferruginous-olive, with ochraceous pubescence.

In the Author's Cabinet.

ENTOMOLOGISTS have been very undecided with regard to the situation that these insects would most naturally occupy. Geoffroy, who gave them the significant name of *Porte-oreilles*, placed them amongst the *Dermestes*, influenced probably by the habit of the body, and the form of the legs; whilst Rossi was induced from the structure of the sternum, to assimilate them with the *Elaters*. Latreille's ideas have been already noticed in the account of *Gyrinus*. Dr. Leach very properly placed them between *Limnius* Müller, (*Elmis* Lat.) and *Heterocerius*. It will not be irrelevant here to remark, that the articulated mass forming the club of the antennæ is not cylindric, like that of *Gyrinus*, but is produced on one side, thereby in some degree assuming the character of that organ in the *Hydrophilidæ*, which follow soon after, according to the views of Dr. Leach and the natural system of Mr. W. S. MacLeay in the valuable work before alluded to.

The original generic name given to these insects by Olivier was *Dryops*, in which he was followed by Latreille; but it being found necessary to divide the genus, Olivier's name has been assigned to a species that has not hitherto been discovered in this country (*P. acuminatus* F.), and Fabricius's name *Parnus* restored to our genus, which appears to contain four British species; and as two of them are new, the following characters are subjoined to distinguish them.

1. *P. prolifericornis* F., sericens *Leach*.—Olivaceous, villose, minutely punctured, elytra very obscurely striated.

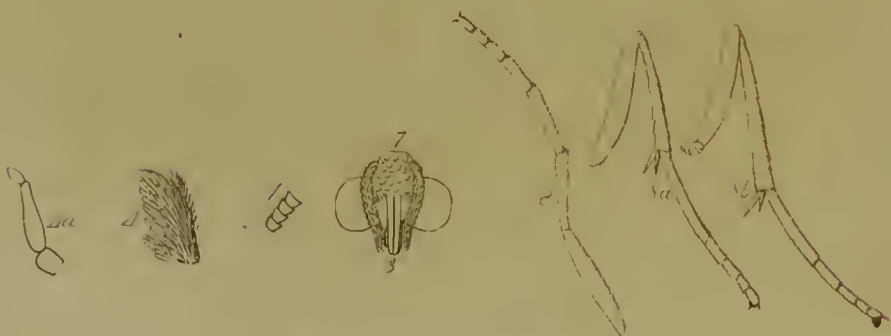
2. *P. impressus* *nob.*—Minutely punctured, with two impressions towards the base of the thorax.

3. *P. bicolor* *nob.*—Minutely punctured, with coarse imperfect striæ at the base of the elytra, head and thorax black, elytra, legs and antennæ, ferruginous.

4. *P. auriculatus* *Ill.*—Ovate, woolly: head and thorax deeply punctured, the margins of the latter very much narrowed before; elytra shining, coarsely punctured, with imperfect striæ at the base.

Mr. Samouelle says that the *Parni* inhabit the roots and blades of grass at the sides of ponds and ditches; they are also to be found amongst the rejectamenta left upon marshes and meadows after a flood, during the winter and spring. By the form of their maxillæ it is supposed that they eat animal substances, and that the down which covers them prevents the water from penetrating their bodies.

The plant figured is *Aster Tripolium* (Sea Starwort).



Ent. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

LOBOPHORA POLYCOMATA.

ORDER Lepidoptera. FAM. Phalænidae Lat., Leach.

Type of the Genus Phalæna hexapterata Fab.

LOBOPHORA Steph. MSS. Phalæna Fab., Haw., Hüb., Leach.

Antennæ rather short, setaceous, composed of numerous transverse joints covered with hair and scales (f. 1, a few joints magnified).

Maxillæ not very long (3).

Labial palpi short, distant, incurved (7), thickly covered with scales (4), 3-jointed; 1st joint cylindric-quadrate, 2nd long attenuated, 3rd short, somewhat truncated obliquely (4 a. the joints denuded).

Head small. Abdomen slender. Wings entire, extended horizontally when at rest, superior long, somewhat lanceolate, inferior small in the males, with a lobe attached at the base of the abdominal margin. Legs rather slender. Tibiæ, anterior not longer than the basal joint of the tarsus (8): 4 posterior having 2 spurs only at their apex in the 2nd division (8 a and 8 b). Tarsi 5-jointed. Claws and pulvilli distinct.

Larvæ loopers, with 6 pectoral 2 abdominal and 2 anal feet.

Obs. The dissections are all taken from *L. polycomata*.

POLYCOMATA Hüb. Schmet. Geom. II. *Æquivocæ* B. pl. 38. f. 190.

Very pale, variegated with irregular waves of brown. Superior wings with an angulated transverse line near the base, and a broad bar near the centre, angulated towards the costa, ferruginous, the latter with a large pale spot next the costa and a small one upon the interior margin, the nerves intersecting the bar black; posterior limb with an interrupted fuscous wave, the margins very pale; costa, cilia, and posterior margin fuscous, the latter with the nerves, and a row of dots along the extremity black. Inferior wings very pale, dull ochraceous, with 2 indented transverse lines near the middle, margin with a row of black dots. Beneath cinereous-ochraceous, with a brown line extending across the wings near the centre, and an oval spot of the same colour near the base next the costa.

In the Cabinet of Mr. Stonc.

THIS insect (new to Britain) being analogous to several groups that are widely distributed through the extensive family to which it belongs, it became necessary to pay particular attention to its structure; and I was much gratified to find that Hübner had given a figure of its larva in the same plate with those of *Geometra sexalisata* and *lobulata*, thereby confirming the opinion that I had formed when I assigned it to the situation which it now holds. The 3 larvæ, as might be expected, are very similar; and I regret that I did not meet with it in time to introduce it into the plate: it is bright green beneath, duller green above, with a narrow yellow line down each side. (Vide *Hübner's Supp. Geometræ II. Æquivocæ G. a. b. fig. 2. a. b.*)

This pretty genus now contains 6 British species, which must form 2 divisions.

* Inferior wings of males with large lobes, posterior tibiæ with 2 pair of spurs.

1. *L. sexalisata* Hüb., Haw.
2. *hexapterata* Fab., Haw., Don. v. 6. pl. 192.

** Inferior wings with small lobes, posterior tibiæ with 1 pair of spurs.

3. *lobulata* Hüb.—*dentistrigata* Haw.
4. *costæstrigata* Haw.
5. *polycomata* Hüb.
6. *viretata* Hüb.—*trinotata* Don. v. 14. pl. 499. f. 1. 1.

I would wish here to call the attention of the student to the structure of the legs of our species (one of each pair being figured, and in which I believe all those of the 2nd division agree), the posterior tibiæ being deficient of a character, which I have never seen wanting in any other group of this family, all other *Phalænidae* having another pair of spurs below the middle. It is also worthy of remark, that *Geometra multi-strigaria* Haw., and *G. dilutata* Hüb. and Haw., have the remarkable oval spot beneath at the base of the wings, and that in habit it somewhat resembles *Phalæna rufata* Fab., and *Phalæna brumata* Linn.; and it is probable that *L. polycomata* will assist in bringing together these species, which are now so unnaturally scattered through the family.

Two females of our insect were taken in a lane near Dartford Heath, Kent, upon Black Thorn, the beginning of April 1824; and Mr. B. Standish took two males upon the wing the 10th April this year, in the same place.

Prunus spinosa (Sloe Tree or Black Thorn) is figured with the insect.



ACRIDA BINGLEII.

ORDER Orthoptera. FAM. Gryllidæ *Leach*. Locustariæ *Lat*.

Type of the Genus Gryllus viridissimus Linn.

ACRIDA Kirby. Conocephalus *Leach*. Locusta *Fab.*, &c. Gryllus *Linn.*

Antennæ as long as the body, setaceous, inserted close to the internal margin of the eyes, composed of innuumerable small joints, irregular in their length, basal joint dilated, 2nd short, 3rd rather longer, attenuated (f. 1).

Labrum membranaceous, orbicular, dilated at the base (2).

Mandibles short, trigonate, internal edge sinuated, in some long, acute, and dentated (3).

Maxillæ slender, internal lobe horny, bifid, with a 3rd tooth below the apex, external lobe membranaceous, obtuse, with a few short hairs. *Palpi* 5-jointed, 1st joint very short, 2nd short, the following long clavate, terminal joint the longest, truncate (4).

Mentum narrowed anteriorly (5 b). *Palpi* hairy, 3-jointed; 1st joint short, 2nd longer cylindric, 3rd long, clavate, truncate (c). *Lip* bipartite orbicular, each lobe having a palpiiform process on the internal edge (a).

Head short, vertical, sometimes acuminate. Thorax convex, compressed, flat above, lobed behind. Abdomen short, thick. Ovipositor long, straight, or recurved. Elytra and Wings deflexed, the males having a transparent cell at the base of the elytra (9 a), in some with rudiments only of elytra, in others entirely wanting. Anterior legs short, posterior pair very long, formed for leaping. Tibiæ serrated, posterior with several strong spines at the apex. Tarsi 4-jointed, the penultimate joint bilobed, the 1st joint having a lobe on each side near the base in the posterior pair (8 apex of tibia and tarsus of hind leg.)

Obs. The dissections are taken from *L. grisea* F., that species being nearest allied to *A. Bingleii*. The elytron of the male is from the latter species.

BINGLEII Dale's MSS.

Male brown, tinged with green. Head rounded, pale and dull green. Thorax of the same colour, slightly carinated, dilated behind. Abdomen piceous, edges of the segments pale. Elytra pale fuscous, tinged with green, spotted with brown, the central spots the largest, interior margin green towards the base. Wings transparent greenish at their base. Legs griseous-yellow; posterior thighs green at their base, variegated with brown. *Female* dull and pale ochraceous, variegated with brown. Abdomen pale down the back; piceous on the sides with irregular pale margins to the segments. Ovipositor slightly recurved, brown with a rosy tinge.

In the Cabinets of Mr. Dale and Mr. Haworth.

THESE insects are well known by the incessant chirping which they make in the evening and during the night; a specimen of *Acrida viridissima* that I kept, feeding it with flies, constantly began to sing at twilight; and by placing a candle in the room, I could distinctly see that the sound was produced by chaffing the anterior margins of the elytra together when at rest.

Greatly as this family has been divided since the days of Linnæus, it is difficult to find characters that will embrace even the insects that are now included in this genus. The name *Conocephalus* which Dr. Leach gave to these insects has been dropped, because it applies to an exotic group with conical heads that will not associate with any other; and Mr. Kirby's name has been adopted, as it is intended to follow the views taken in the Zoological Journal by that learned author.

In giving the following arrangement, which I hope will be found useful, I beg to acknowledge my obligations to J. C. Dale, Esq., for his valuable information and assistance.

A. Living upon or under the ground. Males with an ocellus at the base of the elytra. Antennæ not spotted.

* With perfect elytra and wings.

1. *A. viridissima* Linn., Donovan v. 4. pl. 130.
2. *verrucivora* Linn., Panz. fasc. 89. pl. 20 & 21.
3. *Bingleii* Dale, nob.
4. *grisea* Fab., Sowerby's Brit. Mis. tab. 64.

** With imperfect elytra and wings.

5. *brachyptera* De Geer.
6. *Kirbii* Dale.
7. *fusca* Fab., Panz. fasc. 33. pl. 2.

*** Apterous, or with rudiments of elytra only.

8. *aptera* Turton.

B. Inhabiting trees. Without an ocellus. Antennæ spotted.

* With complete elytra and wings.

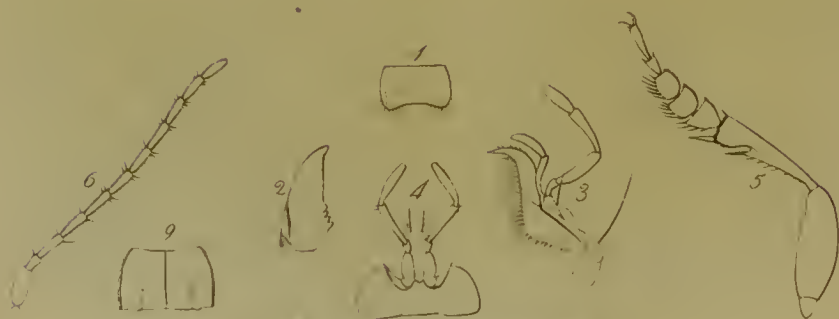
9. *varia* Fab., Don. v. 3. pl. 79.

** With incomplete wings.

10. *clypeata* Panz. fasc. 33. pl. 4.

Mr. Dale informs me that *A. Bingleii* was first taken at Goodwin's Croft, near Christchurch, Hampshire, and given to the late Rev. W. Bingley. Mr. Dale's female was taken 30th July, 1818, by the side of a barley field near Christchurch, and his male at the same place the 14th of August following. This species has been confounded in the Entomological Transactions with *A. verrucivora*, a very fine species discovered near Rochester by Professor Henslow, the end of August; it is employed by the Swedish peasantry to destroy warts, from which circumstance it receives its name.

The plant figured is *Carex præcox* (Vernal Carex).



Drawn by J. Carter. Linn. in Sept 1825

CHLÆNIUS SULCICOLLIS.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus nigricornis Fab.

CHLÆNIUS Bon., Panz, Leach. Harpalus Gyl. Carabus Fab., Payk., Marsh.

Antennæ inserted at the base of the mandibles, before the eyes, 11-jointed, 3 first joints smooth, the remainder pubescent, 1st joint robust, 2nd short, 3rd as long as the first, clavate, the following of equal length, somewhat clavate, excepting the last which is rather longer and ovate (f. 6).

Labrum transverse, quadrate, emarginate, anterior angles rounded, ciliated, sides coriaceous (1).

Mandibles porrected, slightly curved and acute, with 4 minute teeth on the internal edge, near the base (2).

Maxillæ bent at the apex, acute, ciliated. *Palpi* 2, internal scarcely longer than the mandibles, 2-jointed, 1st joint clavate, 2nd bent, attenuated at both ends; external long, 4-jointed, 1st joint small, 2nd and 3rd long, the former robust, the latter clavate, 4th shorter nearly cylindric, truncate (3).

Mentum broad, bilobed, slightly acuminate at the anterior angles, having an emarginate tooth in the centre. *Palpi* arising from long scapes, 3-jointed, 1st joint small, 2nd and 3rd of equal length, the former clavate, the latter attenuated at both ends, truncate. *Lip* long, extending far beyond the mentum, anterior margin straight, with a small process on each side (4).

Thorax narrowed anteriorly, less so in some than in others, sides with a narrow margin, and an impressed line on each side at the base (9).

Elytra sometimes elongated, slightly sinuated at their extremity, punctulate, frequently pubescent. *Wings* 2. *Scutellum* small. *Tibiæ*, anterior emarginate, spined. *Tarsi* 5-jointed, with the 3 first joints dilated in the males (5 a fore leg).

SULCICOLLIS Payk. Fn. Suec. 1. 153. 72. Gyll. Ins. Suec. v. 2. p. 130. n. 41.

Female black. *Antennæ*, excepting the 3 first joints, covered with fuscous hair. Head smooth, shining. Thorax narrowed and sparingly punctured before, scabrose behind, where it is covered with short brown hair, sides scabrose, slightly reflexed, a channel down the centre, with 4 longitudinal elevated shining lines, the exterior one furcate, and large punctures between them. *Scutellum* smooth. *Elytra* scabrose, thickly covered with short brown hairs, interspersed with a few aureous ones, an abbreviated sria next the scutellum and 8 others extending the whole length on each elytron.

In the Author's Cabinet.

THIS genus, established by Professor Bonelli, embraces near 40 species from every quarter of the globe, presenting considerable variety of outline in the thorax, which will afford very good characters for several subgenera or divisions: In confirmation of this assertion it is only necessary to refer to the figures in the plate, the thorax of *C. sulcicollis* being triangular, truncated anteriorly, whilst that of *C. nigricornis* (fig. 9) is nearly quadrate; and in *C. vestitus* the difference is even greater, the thorax being slightly narrowed behind.

Chlœnius sulcicollis is figured in the 125th plate of Sturm's beautiful Insects of Germany (Deutschlands Fauna), which enabled me to identify our insect, which had stood in the cabinet many years without a name. It appears to be very rare upon the Continent, where it is found under stones in moist situations. I am indebted to my brother for the female described, which is the only British specimen known; he found it dead under the cliffs at Covehithe, Suffolk, where I have frequently sought for it since without success.

There are 3 other species inhabitants of this country which our insect will follow; viz.

1. *C. vestitus* *Fab.*, *Panz.* 31. 5.—found as early as March on moist banks and in woods.

2. *C. nigricornis* *Fab.*—found upon moist banks and in marshes in April.

3. *C. holosericeus* *Fab.*, *Panz.* 11. 9.—very rare, taken by the Rev. T. Skrimshire in Norfolk in the spring.

Like most of the *Carabidæ* they are vernal insects: many of the exotic species are very beautiful; green is a prevailing colour amongst them, and they frequently have a margin of yellow or ochre-colour round their elytra.

The plant figured, *Bunias Cakile* (Sea Rocket), was gathered in the neighbourhood where the insect was found.



XANTHIA CENTRAGO.

The Centre-barred Sallow.

ORDER Lepidoptera. FAM. Noctuidæ *Lat., Leach.*

Type of the Genus Noctua flavago Fab.

XANTHIA Hüb., Och. Noctua Linn., Fab., Haw.

Antennæ rather long and robust, setaceous, composed of numerous transverse joints covered with scales above, ciliated transversely beneath (1 a, several joints magnified).

Maxillæ nearly as long as the antennæ, somewhat robust (3).

Labial Palpi projecting somewhat obliquely (4), thickly covered with long scales, the terminal joint with smaller and shorter scales (4), 3-jointed, 1st joint curved upward, 2nd very long attenuated, 3rd slender, somewhat conic-ovate (4 a, the scales being removed).

Head rounded. Thorax crested. Abdomen not very robust, cylindric or angular. Wings deflexed when at rest, superior slightly falcate. Thighs thickly covered with long woolly scales. Tibiæ, anterior with a long flat spine on the internal side, the others terminated by a pair of spurs, the posterior having an additional pair below the middle. Tarsi 5-jointed, 1st joint rather long. Claws bifid. Pulvilli horny (8, a fore leg).

Larvæ with 6 pectoral, 8 abdominal, and 2 anal feet.

CENTRAGO Haw. Lep. Brit. p. 236. n. 219.

Aureous or orange-colour. Head thorax and antennæ dull reddish orange. Superior wings with a reddish brown bar in the centre, broadest towards the costa, where it is nearly obsolete, a stripe of the same colour with a sinuated edge, not extending to the apex next the cilia. Inferior wings pale, whitish at their base, reddish yellow at their margin, with 2 obscure lines of the same colour near the middle. Cilia orange brown. Beneath straw colour, reddish brown towards the margins.

In the Cabinets of Mr. Dale, Mr. Haworth, and the Author.

THE generic characters drawn above are unfortunately without a knowledge of the ideas of Hübner and Ochsenheimer

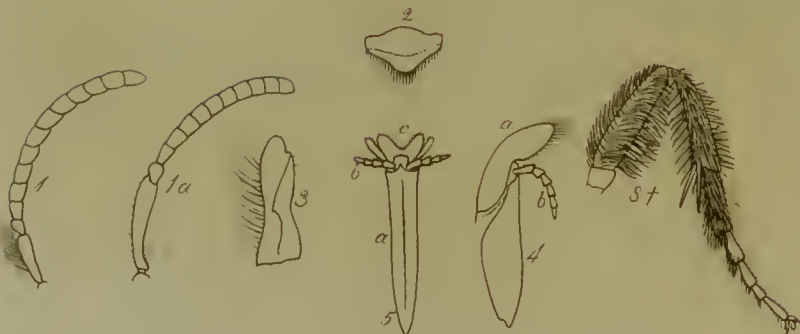
upon the subject; and the only minute difference I have been able to detect, is the peculiar ciliation of the underside of the antennæ: as a natural group, however, they have long been recognised and known in this country by the appellation of *Sallows*, and are remarkable for the fine orange and brown tints that ornament their upper wings. *Noctua croceago* Fab., from its depressed body and the different character of its palpi, will probably form a distinct genus; and *Noctua citrina*, and *N. helvola*, will form divisions of our group;—with these there are 8 indigenous species of this beautiful genus.

1. *X. centrargo* Haw., Nob.
2. *aurago* Fab.
3. *flavago* Fab.
4. *fulvago* Linn.—*rubago* Don. v. 10. pl. 338. f. 2.
5. *gilvago* Fab.
6. *citrargo* Linn.
7. *citrina* Don. v. 10. pl. 340. f. 2.
8. *helvola* Linn.

The rare species figured was first described by Mr. Haworth in his *Lepidoptera Britannica*, and appears to be unknown upon the Continent, the only species approaching it being the *Noctua Xerampelina* of Hübner.

The caterpillar most likely feeds upon the Sallow, as the specimen that I found in 1813 resting upon a plant in some meadows at Costessey in Norfolk, was within a few yards of a willow-ground. Mr. Howard Sims found a specimen about the same time, which is, I believe, in the British Museum. Mr. Haworth records another specimen taken in Norfolk by the Rev. T. Skrimshire; and the beautiful female figured, came to a lighted candle at Glanville's Wootton, Dorset, and was taken by Mr. Dale, 26th Sept. 1816.

Saxifraga granulata (White Saxifrage) is figured in the plate.



COLLETES FODIENS.

ORDER Hymenoptera. FAM. Andrenidæ *Lat., Leach.*

Type of the Genus Apis succincta Linn.

COLLETES *Lat., &c.* Melitta **α Kirby.* Andrena *Fab., Jur.* Apis *Linn., &c.*

Antennæ inserted near the middle of the face, distant, the 3rd joint longer than the 2nd;—in the male filiform, 13-jointed, basal joint with a tuft of hair (f. 1);—in the female, slightly clavate, 12-jointed, basal joint hairy, much longer than in the male (1 a). *Labrum* convex, trigonate, with a transverse suture, strongly ciliated (2).

Mandibles long, linear, curved, hairy, dilated at the base, notched near the apex upon the internal edge (3).

Maxillæ rigid below the palpus, terminated by a single, oval, scarcely coriaceous lobe, ciliated and bent inward (4 a). *Palpi* subsetaceous, longer than the maxilla, 6-jointed (b).

Mentum very long, linear, attenuated at the base, produced in the centre anteriorly (5 a). *Palpi* longer than the lip, 4-jointed, 3 first joints somewhat clavate, basal joint the largest (b). *Lip* hairy, dilated at the apex deeply emarginate, with 2 lateral, small obtuse lobes (c).

Head as broad as the thorax. Eyes lateral. Ocelli 3, in a curved line.

Thorax globular. Scutellum semicircular. Abdomen convex, ovate-conic, tomentose or hirsute, narrower in the males. Wings pubescent towards their posterior margins. Superior with 1 marginal, pedicled cell, and 3 submarginal cells, the 2nd and 3rd receiving recurrent nerves. Posterior legs of female very hairy, pollinigerous. Tibiæ with 2 long spines at the apex, 1 ciliated. Tarsi, basal joint long, robust, 2nd large clavate, 3rd clavate slender, 4th minute, 5th long clavate. Claws bifid. Pulvilli very distinct (8† hind leg of female). Males smaller than the females, solitary, without neuters.

FODIENS *Kirby's Mon. Ap. Ang. v. 1. p. 130. & v. 2. p. 34. n. 2.*

Male black, face and thorax punctured, thickly covered with fuscous-ochraceous soft hair. Abdomen punctured, especially the basal segment, which has a whitish margin of short hair as well as the 4 following, forming 5 transverse bands. Wings stained with dull yellow, slightly iridescent, fuscous at the apex. *Female* black, face thickly covered with yellowish ferruginous hair. Clypeus naked, rugulose. Thorax and scutellum punctured, thickly covered with yellowish ferruginous hair. Abdomen with the basal joint more deeply punctured than the others, with an ochraceous tomentose spot on each side at the base, and a white spot of hair on each side at the margin, 2nd joint with a band of pale ochraceous hair at the base, and another at the margin, the 3 following segments with a band of ochraceous hair at the margin, legs clothed with whitish yellow hair, the posterior thighs with a thick beard of hair.

In the Author's and other Cabinets.

INDEPENDENT of the differences in the mouth, *Colletes* may be instantly known from the two genera which it most resembles externally, *Andrena* and *Halictus*, by the equal proportions of the 2nd and 3rd submarginal cells, one of which is small in the former, and by those cells receiving recurrent nerves, which is not the case in the latter.

We have 3 or 4 species of *Colletes* in Britain; viz. 1. *succincta* Linn. 2. *fodiens* Kirby. 3. *Daviesana* Kirby's MSS. and a species in my cabinet, which appears to be very different from the foregoing.

The males of *C. fodiens* I took upon the elevated cliffs at Christchurch, Hampshire, that are covered with heath, about the middle of August; and a few days after I met with the females in abundance flying about the western side of a bank upon Parley Heath in the same county, but saw no males. Although this species has been figured in *Monographia Apum Angliæ*, the beautiful state of the females that I took has induced me to give one as an example of the genus. I can scarcely think that the insects figured by Panzer, *fasc.* 105. n. 21 & 22, can be the *Melitta fodiens* of Kirby; they are too black, the scutella are pale, and the female wants the light spots upon the basal segment of the abdomen.

We are indebted to Reaumur for a knowledge of the economy of these bees, and it is a little singular that no one appears since his time to have been able to discover their nests, which they form amongst the earth that fills up the spaces of some stone walls; they are cylindrical, and composed of many cells of different lengths, placed in a horizontal line, each cell being formed like a thimble and fitted to the next: sometimes, however, when a stone obstructs their course, the line becomes irregular. The cells have alternate transverse bands of two or more colours; the shorter ones at their junction are white, the longer ones enveloping the body are reddish brown. These cells are constructed of many layers lying one over the other; and although their contexture is close, they are very transparent, in consequence of their extreme thinness,—sufficiently so to discover the colour of the substances contained in them, which causes the variegated line above described.

The plant figured is *Campanula glomerata* (Clustered Bell-flower).



you will find me Sept 1 1845

ANEURUS LÆVIS.

ORDER Hemiptera. FAM. Cimicidæ *Lat., Leach.*

Type of the Genus Aradus lævis Fab.

ANEURUS *Nob.* Acanthia *Fab.* Aradus *Fab., Lat.*

Antennæ inserted before the eyes, near the anterior angles of the head, pubescent towards the apex, 4-jointed, 1st joint short oval, 2nd of same length but less robust, 3rd joint rather longer, 4th long, clavate (f. 4).

Rostrum robust, inflected, shorter than the head, 4-jointed, 1st joint broad, short, 2nd pear-shaped, 3rd somewhat obovate, 4th very minute (2).

Mandibles and *Maxillæ* very long, like setæ passing through the rostrum.

Head trigonate, angles acute, anterior margin produced in the centre, acuminate. Eyes not very prominent. Neck distinct. Thorax narrowed before. Scutellum semiorbicular. Abdomen very depressed, margined, entire, apex more produced in the males than in the females (9). Elytra when at rest covering only the centre of the abdomen, without nerves, scarcely coriaceous, margins membranaceous. Wings very small. Legs very short. Thighs and Tibiæ simple. Tarsi short, 2-jointed? basal joint minute (6, a fore leg).

LÆVIS *Fab. Ent. Syst. v. 4. p. 73. n. 25.*

Ferruginous, granulated. Head, thorax, and scutellum black, excepting the acuminate lobe of the former and the posterior angles of the thorax, which are ferruginous. Abdomen granulated, with a row of spots down the margins, a line down the centre and one down each side of the body shining. Elytra fuscous, rather rough, shining, ferruginous at the base. Superior margin dull white. Wings dirty white.

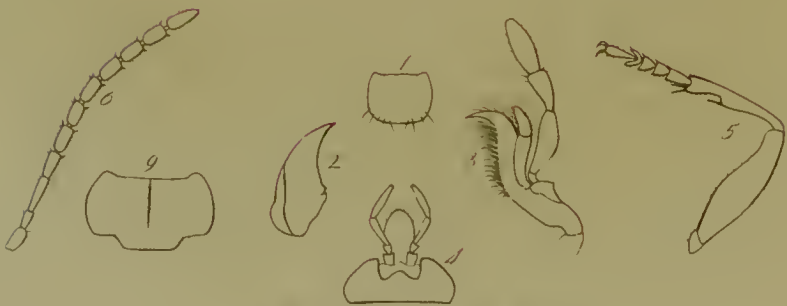
In the Author's and other Cabinets.

UPON an examination of our insect, it was found to be so very different in structure to *Aradus*, that it was impossible to include it in that genus, which has the 2nd joint of the antennæ the longest, a rostrum longer than the head, an elongated

triangular scutellum, and elytra with very strong nerves. These characters will be found, upon a comparison with our description and drawing, to be totally different from those which *Aneurys* exhibits; this name implies the absence of nervures in the elytra and wings.

Aneurys lævis is a Fabrician species, described by that author as British, from the cabinet of the late Sir Joseph Banks. I am not aware that it has been before figured; and from Latreille never having seen it, we may presume that it is very rare upon the Continent. In economy it resembles the *Aradi*, living under bark, for which its form is peculiarly adapted, the flatness of its body and the shortness of its legs enabling it to lie very close; and this will account for the remarkably short rostrum, which is no less well adapted for its particular habits of life,—the extraction of nutrition from the internal covering of trees. From the number I met with the end of August 1822, they appear to be gregarious; they were concealed beneath the loose bark of a fir-pole that was laid across a brook, near Parley Heath, Hampshire. The males are smaller than the females.

The plant is *Erysimum Barbarea* (Winter Cresses, or Rocket).



Chrysomelidae - Anthrenus - L. 1. 1. 5

LEBIA TURCICA.

ORDER Coleoptera. FAM. Carabidæ Lat., Leach.

Type of the Genus Carabus crux-minor Linn.

LEBIA Lat., Bonelli, Panz., Leach, Gyl. Carabus Linn., Fab., Oliv.

Antennæ inserted before the eyes, growing slender towards the base, 11-jointed, the 3 first joints naked, the remainder pubescent, with a few bristles, 1st joint not very large, 2nd small, 3rd the longest, 7 following oblong, terminal joint longer than the preceding, ovate-elongate (f 6).

Labrum somewhat orbicular or quadrate, sides membranaceous, a few hairs upon the anterior margin (1).

Mandibles slender, bent, acute, naked, with 2 minute teeth at the base on the internal side (2).

Maxillæ small, slender, bent, acute, ciliated on the internal edge.

Palpi 2, internal robust, not longer than the maxilla, 2-jointed, 1st joint long, clavate, 2nd short somewhat ovate hairy; external robust long, 4-jointed, 1st joint minute, 2nd long, dilated in the middle, 3rd shorter clavate, 4th as long as the 2nd, ovate-elongate, scarcely truncate (3).

Mentum transverse, emarginate, centre produced, rounded.

Palpi 3-jointed, basal joint minute, 2nd long clavate, 3rd spheci-form truncated. *Labium* long, projecting beyond the 2nd joint of the palpi, rounded, slightly hairy (4).

Thorax scarcely broader than the head, transverse, nearly straight before, with the anterior angles rounded, sides margined, greater portion of the posterior margin produced in a transverse lobe covering the neck (9). Body very much depressed. Elytra shorter than the abdomen, abruptly truncated. Wings long. Anterior tibiæ notched. Tarsi 5-jointed, 4 first joints short, the basal one rather the longest, the 4th bilobed, terminal joint longer, clavate (5 a fore leg).

TURCICA Fab. Ent. Syst. t. 1. pars 1. p. 161. n. 161.

Black shining: eyes gray: mouth, thorax, neck, scutellum, antennæ and legs ferruginous or brick colour; a lunular spot upon each elytron at the base of the external margin, extending nearly to the middle, a narrow margin round and 2 minute spots at the posterior angles of the elytra ochraceous; beneath ochraceous and brick colour, the margins of the abdomen and the segments black. Head rugulose. Thorax with fine transverse lines and a channel down the middle. Elytra emarginate at the apex, with an abbreviated finely punctured stria next the scutellum and 8 long ones extending the whole length.

In the Cabinet of the British Museum.

THE lobe of the thorax that covers the neck (which is not easily detected unless it be detached from the body, on account of a transverse impression extending across), and the bifid penultimate joint of the tarsi, are strong characters to mark the genus *Lebia*, which contains 2 British species. The rare and beautiful one figured is a native of France and Italy; and the specimens in the British Museum were taken, it appears by a memorandum of Dr. Leach's, near Oakhampton House, Somersetshire.

Carabus crux-minor Linn., the other species found in our country, although less rare, is very seldom met with. It is said to be taken under stones in June; in August also it has been found upon trees in Coombe Wood; and I remember Mr. Brightwell of Norwich taking one out of a tan-pit at Ly-mington, Hampshire, where it had probably been conveyed with the bark: This insect is figured by Olivier, *tab. 4. fig. 41. a. b.*; and by Panzer, *fascicle 16, plate 2.*

Anemone nemorosa (Wood Anemone) is figured with the insect.



Gut. by J. C. L. Linnæus 1826

CLEORA CINCTARIA.

ORDER Lepidoptera. FAM. Phalænidæ *Lat., Leach.*

Type of the Genus Phalæna cinctaria Hub.

CLEORA *Nob.* Phalæna *Linn., Fab., Lat., Leach.* Geometra *Hub., Haw.*

Antennæ inserted close to the eyes near the crown of the head, setaceous long and slender, covered with long scales above, hairy beneath, each joint having a few larger bristles upon its anterior margin (f. 2, 3 joints magnified).

Maxillæ slender, not so long as the antennæ (3).

Labial palpi 2, projecting obliquely a little beyond the head, obtuse, thickly covered with short broad scales which extend considerably beyond the terminal joint (4), 3-jointed, 1st joint curved upward from the base, 2nd filiform somewhat truncated, 3rd small oval (4 a).

Wings extended horizontally, undivided, slightly indented. *Abdomen* robust and conical in the females. *Legs* rather robust. *Anterior tibiæ* longer than the basal joint of the tarsus, with a short compressed spine on the internal edge, concealed by long scales, 2nd pair terminated by 2 spurs, the hinder pair having 4 spurs, 2 of which are at the apex. *Claws* distinct, bent. *Pulvilli* distinct (8 a fore leg). *Caterpillars* loopers with 6 pectoral, 2 abdominal, and 2 anal feet.

CINCTARIA *Hubner's Lep. Geom.* 1. *Amplissimæ Y, Pl.* 31. f. 166. *fem.*

Whitish, variegated and minutely spotted with brown. *Clypeus* with a black line above the palpi. *Abdomen* with a white narrow band at the base and a dark one following it, with a double row of black spots down the back. *Superior wings* variegated with ochraceous, especially towards the base and posterior margin where they are darkest, 2 transverse black curved lines near the base and another crenated one beyond an oval ocellus in the centre, with a pale sinuated one near to and parallel with the margin. *Inferior wings* paler, with an ocellus in the centre, a transverse sinuated stripe internally black, externally white, a shorter one near the base, and one entirely pale near the margin. *Posterior margins* of wings indented, with a black line. *Cilia* alternately fuscous and ochraceous.

Var. α. darker with a black line across the anterior part of the thorax, which is ferruginous on the sides. *Abdomen* wanting the transverse black fascia.

In the Cabinets of Mr. Dale and the Author.

THE great mass of insects which has hitherto been comprehended under the appellations *Phalæna* and *Geometra*, renders

it necessary that the groups should be separated and formed into new genera: this, however, is a difficult task, and the labourer in the field of science must be contented in the first instance to give a general outline; the minutiae required to establish satisfactory characters can only be obtained by extensive and repeated investigation. With such manifest obstacles in an Order, the classification of which has been so much neglected, it becomes an arduous undertaking: it is therefore with considerable hesitation that the subject of the present article has been constituted into the type of a new genus; and had it not been perfectly new to this country, it would not at present have been laid before our readers.

After examining 7 specimens, 3 of which were British, I could discover no difference in the structure of the antennæ, which from their simple form indicate the female sex, although the abdomens of the paler specimens, being slightly contracted towards the base, at first led me to believe that these specimens were males: if such be the case, the variety described is a female. I am, however, inclined to think that the males have not been detected at present, and that they will be found to possess ciliated, not pectinated, antennæ; in which case they will associate with the following species.

1. *Geometra tetragonaria* *Harw. MSS.*
2. *abietaria* *Hub.*
3. *crepuscularia* *Hub.*
4. *consonaria* *Hub.*
5. *punctularia* *Hub.*
6. *extersaria* *Hub.*

For the introduction of this rare species into our Fauna we are indebted to J. C. Dale, Esq., who first took it on the trunk of an Oak near Brockenhurst, Hants, June 2nd, 1823; a 2nd specimen upon the trunk of a Scotch Fir, Parley Heath, May 11th, 1824; and a 3rd near Lyndhurst, May 31st, 1824. It has this year again appeared in the New Forest, where I am informed 2 specimens were captured.

The plant figured is *Hedysarum Onobrychis* (Cock's Head, or Sainfoin).



ABIA NIGRICORNIS.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo sericea Linn.

ABIA *Leach.* *Cimbex Fab., Olin., Lat. Tenthredo Linn., Jur., Panz.*
Antennæ inserted near the interior margin of the eyes, short clavate, 7-jointed, 1st and 2nd joints transverse, hairy, 3rd very long bent, clavate, 4th and 5th more robust clavate-truncate, 6th short robust, 7th short rounded (fig. 1).

Labrum transverse, rounded, very pilose (2).

Mandibles small, bent, somewhat acute, with a strong tooth on the internal edge, very hairy externally (3).

Maxillæ small, internal lobe acute, external ovate ciliated. *Palpi* long coriaceous at the base, membranaceous towards the apex, slightly hairy, 1st and 2nd joints very short, 3rd and 4th of equal length, robust, 5th and 6th longer and more slender (4).

Mentum somewhat quadrate, deeply emarginate (5 a). *Palpi* 4-jointed, 2 first joints coriaceous, the others membranaceous (b).

Lip composed of 3 equal lobes, margined (c).

Head rather small. *Eyes of the males approximating behind.* Ocelli 3, placed before the eyes, especially in the males. Abdomen sessile, villose, cylindric, broader in the females, the males having a quadrate silky spot beyond the middle. Oviduct not exerted, composed of 2 lamellæ which are serrated. Superior wings with 2 marginal and 3 submarginal cells. Legs slender. *Tibiæ* with obtuse syphon-formed spurs. Tarsi with the joints gradually decreasing in length to the last, 5-jointed, 4 first joints with membranaceous appendages. Claws bifid. Pulvilli distinct (8 a fore leg).

Larvæ with membranaceous feet.

NIGRICORNIS *Leach, Zool. Mis. v. 3. p. 113. n. 1.—nitens Linn. Faun. Suec. 1539.—sericea var. Fab. Syst. Piez. p. 18. n. 10.*

Male: Antennæ black. Eyes dull cinereous. Head and thorax greenish-black. Abdomen dull, brassy green, minutely punctured and covered with short pubescence, a large quadrangular blackish spot upon the centre of the 4th, 5th, and 6th segments. Wings iridescent at their margins, stained yellow: superior variegated with brown in the centre and at the apex, nerves pale towards the base, dark at their extremities. Legs pale ochraceous, thighs æneous-black, except at the apex. *Female:* Antennæ with the club brown. Abdomen dull aureous green, without any spot.

In the Author's and other Cabinets.

ABIA was separated from the *Cimbices* by Dr. Leach, and is easily distinguished from his genus *Zaræa*, which it most resembles, by the three last joints of the antennæ forming a club, whereas in *Zaræa* it is composed of only 2; and the singular quadrate spot upon the abdomens of the males at once distinguishes that sex from the whole family.

Abia nigricornis appears to have been considered by Linnæus as the female of *Tenthredo nitens*, and by Fabricius as a variety of *Cimbex sericea*. Amongst other distinctions, however, the colour of the antennæ, the brown markings of the wings, and the situation and form of the spot upon the abdomen of the males are sufficient, now that the sexes of both have been taken, to justify its being recorded as a distinct species. It was, I believe, never before figured. It has been taken at Coombe Wood, by J. F. Stephens, Esq., in the month of June. *A sericea*, the other species inhabiting this kingdom, has been found on heaths upon Furze-bushes, in June, and sometimes occurs in considerable abundance: it is figured by Donovan in his *Brit. Ins. v. 12. pl. 402*.

The plant represented is *Genista anglica* (Needle Furze, or Petty Whin).



Chrysomelid. Larva. et. n. n.

CHIRONOMUS ÆSTIVUS.

ORDER Diptera. FAM. Tipulidæ *Lat., Leach.*

Type of the Genus Tipula plumosa Linn.

CHIRONOMUS *Meig., Lat., Fab., Panz.* Tipula *Linn., Fab., &c.*

Antennæ approximating, arising from the crown of the head.

Male plumose, 13-jointed, basal joint large globular, 2nd small, 10 following very minute, transverse, terminal joint very long, nearly filiform (fig. 3). *Female* shorter, 7-jointed, basal joint large, somewhat globose, 2nd small, 4 following ovate, elongate, increasing in length from the 1st, with a few long bristles, terminal joint long, attenuated, pilose (3 a).

Labrum and *tongue* horny, short, acute (2* b).

Lip small, bilobed, membranaceous, hairy (g).

Palpi 2, exserted, incurved, cylindric, pilose, 4-jointed, basal joint small, the following long, of equal length (f).

Head small, transverse. Clypeus large, semiorbicular. Eyes kidney-shaped, approximating behind. Ocelli none. Thorax gibbose, rounded behind. Scutellum formed apparently of 2 plates, one lying over the other. Abdomen of males linear, slender; of females robust. Wings not longer than the body, lanceolate, deflexed, transparent, sometimes hairy, interior margin ciliated (9). Halteres short, naked. Legs, anterior the longest, and distant from the others. Tarsi 5-jointed. Claws and Pulvilli distinct.

ÆSTIVUS *Nob.*

Female pale sulphur colour, very hairy. Eyes black. Thorax very globose, projecting over the head like a hood (fig. A), with 2 abbreviated stripes down the centre and the sides towards the base ferruginous, 10 long and round black spots forming an interrupted line round the thorax, and 3 others very minute at the base of the wings. Abdomen robust, ferruginous at the base, ochraceous towards the apex, reticulated with black down the back. Wings hairy, iridescent, stained ochraceous, deepest towards the costa, with a fuscous spot near the interior angle, and 2 paler spots towards the posterior margin. Thighs and tibiae very robust, ochraceous, the latter fuscous at their extremities. Tarsi with the 4 first joints fuscous at their apex, terminal joint and claws nearly black.

In the Cabinet of Mr. Bentley.

THIS beautiful and extensive genus is distinguished by the structure of the antennæ and the nerves of the wings from *Corethra* and *Tanypus*, which it appears to connect. There are already in our cabinets about 70 species, most of them described by Meigen and Fabricius; that which has been selected for the drawing is a female of a nondescript species taken by Mr. Bentley upon Brookenhurst Heath, Hampshire, the beginning of June 1823: it is so nearly allied to Meigen's *C. elegans* (v. 1. p. 48. n. 63. and tab. 2. f. 7.), that I at first considered it to be the same; but it differs not only from his figure, but also materially from the description. Panzer's *C. crassipes* (fasc. 109. pl. 22.), which I am sorry to see Meigen does not refer to, is probably the male of his *C. elegans* above mentioned: it is a larger insect than ours, and differently marked.

Reaumur, in his valuable work (*Mem. 1 de l'Hist. des Ins. tom. 5. pl. 5.*), has given copious illustrations of the larvæ and pupæ of the type of the genus, which were amongst the earliest objects in nature that attracted our notice: the former are the beautiful red worms seen in stagnant water so peculiar in their mode of jerking themselves about; and the latter are the little objects with a globular thorax and feathered head and tail seen lying close to the surface of the water, and descending to the bottom when any one approaches.

The plant is *Pinguicula vulgaris* (Common Butterwort).





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OBRIMUM CANTHARINUM.

ORDER Coleoptera. FAM. Cerambycidæ *Lat., Leach.*

Type of the Genus Cerambyx cantharinus Linn.

OBRIMUM *Megerle. Saperda Fab., Panz. Callidium Fab. Cerambyx Linn.*

Antennæ inserted in a notch in the eyes, as long as the body in the females, longer and more slender in the males; 11-jointed, hairy, 2nd joint the smallest, 5th the longest (fig. 6).

Labrum small, transverse, hairy (1).

Mandibles bent, acute, somewhat trigonate (2).

Maxillæ terminated by 2 lobes, ciliated with strong hairs, the internal one short, somewhat acute, the other long, curved and truncated. *Palpi* 2, 4-jointed, the 3 first joints short, somewhat clavate with a few bristles, the terminal joint long, robust, attenuated towards the extremities, truncated (3).

Mentum transverse, rounded at the sides, emarginate before.

Lip bilobed, ciliated. *Palpi* 3-jointed, 2 first joints short, 3rd somewhat elongate, ovate-truncate (4).

Head *nutant trigonate*. Eyes *emarginate on the internal edge*. Thorax *longer than broad, produced on each side, but not spined*. Scutellum *small*. Body *elongate, nearly cylindric*. Elytra *long, twice the breadth of the thorax, having a truncated appearance before and rounded at the apex*. Wings 2. Thighs *clavate*. Tibia *simple*. Tarsi *composed of 4 joints, of which the 1st is the longest, the 3rd bilobed, 4th slender*. Claws *small (5 a fore leg)*.

CANTHARINUM *Linn. Syst. Nat. 2. 637. 82.—brunnea Fab. Ent. Syst. v. 1. pars 2. p. 316. n. 45. Panz. 34. 15: mas.—ferruginea Fab. Ent. Syst. v. 1. pars 2. 316. 44. Panz. 34. 14: fem.*

Mas: ochraceous-ferruginous, shining, pilose, head and thorax somewhat more brilliant than the elytra, which are irregularly punctured. Eyes black. Legs brown, inclining to ferruginous. *Antennæ* brown, deepest towards their base. *Fem*: twice or thrice the size of the male. Head and thorax punctured. *Antennæ* and legs black; two terminal joints of the tarsi rufous.

In the Cabinets of Mr. Sparshall and the Author.

ALTHOUGH I have not seen Megerle's characters of the genus *Obrimum*, I have no hesitation in adopting it, since the long and dilated, or subspinose thorax as Fabricius terms it, neither agrees with *Saperda* nor *Callidium*; and the length of the 5th joint of the antennæ appears to be a peculiar character. De-

jean, however, has included in this genus, *Cerambyx minutus* (*Callidium pygmaeum* F.), which I suspect belongs to another group.

The two insects figured in the plate (which are perfectly new to Britain) having been found on the same spot, I have considered them as the sexes, although Fabricius and Panzer have described them as distinct species, calling the male *Saperda brunnea*, and the female *S. ferruginea*; and Linnæus having first described the latter under the name of *C. cantharinus*, his specific name has here been restored.

Mr. Joseph Sparshall informs me that a male and female of our insect were taken by Mr. Henry Doubleday in a garden at Great Coggeshall, Essex, the 15th of July 1823, resting upon the leaves of an apple-tree: another male was found upon a plant close to the same tree the 10th of August in the following year; and Mr. Blunt captured a female last year about the end of July, which was sticking to the bark of an aspen-tree near Wanstead House, Essex.

Pyrus malus (Crab-tree) accompanies the insects; the upper figure representing the female, the lower one the male.



SPILOSOMA WALKERII.

ORDER Lepidoptera. FAM. Arctiadae Leach.

Type of the Genus Bombyx Menthastris Fab.

SPILOSOMA Stephens's MSS. Bombyx Linn., Fab. Arctia Schr., Lat., Leach.

Antennæ nearly of equal length in both sexes, densely covered with short scales, bipeetinated in the male (f. 1), serrated in the female (2), the former with the branches ciliated, terminated by a bristle in both sexes.

Labrum and *Mandibles* small and obscure.

Maxillæ short, flat, membranaceous, composed of 2 separate filaments, ciliated at their apex (3).

Labial palpi projecting horizontally from the head, distant, very hairy, cylindric, 3-jointed, 1st and 2nd joints of nearly equal length, terminal joint not very small oval-conic (4 and 4 a).

Wings trigonate, slightly deflexed, undivided. *Body* short, robust in both sexes. *Legs* short robust. *Tibiæ* with a spine on the internal side of the anterior pair, 4 posterior with spurs at their apex. *Tarsi* 5-jointed. *Claws* very minute (8 a fore leg).

Caterpillars very hairy, with 6 pectoral, 8 abdominal, and 2 anal feet.

WALKERII Nob.

Pale buff-colour. Palpi, antennæ, and upper side of legs black. Abdomen orange, each segment having a black spot on the back and one on each side above, and a row of black spots on each side beneath. Superior wings with the costa and edges of the nerves towards the base black, the spaces between the nerves towards the posterior margin black, the 5th, 6th and 7th having spots of buff. Inferior wings with a black spot near the centre, and several upon and near the posterior margin.

In the Cabinet of Sir Patrick Walker.

IN naming this rare and nondescript species after Sir Patrick Walker, I am happy in the opportunity that it affords me of acknowledging my obligations to him for the handsome manner in which he forwarded me in my pursuits in a recent visit to Scotland, as well as for much valuable information relating to the natural history of that interesting country.

The specimen figured was taken by the gentleman in whose cabinet it is now preserved, in his house at Drumseugh, Edinburgh, the end of August 1820: its natural situation in the genus is between *S. Menthastræ* (which it most resembles in the colour of its legs and the disposition of its markings) and *S. lubricipeda*, the female of which it comes very close to in colour. Mr. Haworth has a fine species also resembling *S. Walkerii* in markings; but it is smaller, and I think formed more like *S. papyritia*.

In the structure of the mouth and the antennæ this group approaches exceedingly near to *Eyprepia* (plate 21). Mr. Stephens has called it *Spilosoma*, from their spotted bodies. The following species can now be enumerated as British.

1. *Spilosoma lubricipeda* Linn., Don. v. 16. pl. 568.
2. *Walkerii* Nob.
3. *Menthastræ* Fab. *Erminea* Mars. Linn. Trans. v. 1. p. 70.
4. *Urticæ* Hub. 2. L. b, b. c: from Yorkshire, in Mr. Haworth's cabinet.
5. *papyritia* Mars. Linn. Trans. v. 1. p. 70.
6. *radiata* Haw. MSS.

The plant figured is *Pimpinella saxifraga* (Common Burnet Saxifrage).



CLAVELLARIA MARGINATA.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo Amerinæ Linn.

CLAVELLARIA *Lamarck, Leach.* *Cimbex Oliv., Fab., Lat.* *Tenthredo Linn., Fab., Jur., Panz.*

Antennæ inserted between the eyes, longer in the male than female, clavate, 5-jointed, 1st joint somewhat globose, with a tuft of long hairs, 2nd transverse hairy, 3rd very long slender, 4th short, 5th forming a club as long as the 3rd joint, covered with minute tuberculated glands (f. 1).

Labrum large, semi-transparent, scarcely hairy, rounded, narrowed at the base (2).

Mandibles exserted, very long in the male, slender, acute, with 2 large and sometimes smaller teeth on the internal edge (3).

Maxillæ hairy, composed of 2 membranaceous lobes, the superior one somewhat trigonate, the internal one more lanceolate. *Palpi* considerably longer than the maxillæ, composed of 6 joints of nearly equal length, 3 first joints robust, 2 following somewhat hatchet-shaped, terminal joint clavate (4).

Mentum pilose, oblong, slightly dilated before (5 a). *Palpi* a little longer than the lip, 4-jointed, 3 first joints of equal length, the 3rd rather more robust, terminal joint the longest, cylindric, not more slender than the others (b). *Lip* membranaceous, 3-lobed, the centre one linear, the others considerably longer, narrow, attenuated towards the base (c).

Clypeus broad, emarginate, membranaceous (1 a, front view of head of male). *Ocelli* 3. *Abdomen* sessile, villose, linear in the males, somewhat dilated in the females, 1st segment scarcely emarginate above. *Oviduct* not exserted, composed of 2 lamellæ that are serrated. *Superior wings* with 2 marginal and 3 submarginal cells. *Thighs* unarmed, 4 posterior incrassated in the males. *Tibiæ* with siphon-formed spurs, obtuse at the apex. *Tarsi* 5-jointed, with the penultimate joint a little shorter than the antepenultimate, 4 first joints with small membranaceous appendages slightly angulated beneath. *Claws* simple (8 a fore leg). *Larvæ* with membranaceous feet.

MARGINATA *Linn. Syst. Nat.* 2. 929. 2. *Fab. Ent. Syst.* t. 2. p. 106. n. 6.

Fem: black. Head and thorax pubescent. *Clypeus* pale yellow. Club of the antennæ except at the base ferruginous. Thorax and basal joint of abdomen green inclining to purple. Basal joint of abdomen edged with yellow, the remaining joints except the 2nd and 3rd margined with ochraceous, the band on the 4th joint being interrupted in the middle. *Tibiæ* and *tarsi* pale ferruginous. *Wings* stained yellowish, the costal and one of the discoidal cells being most intense, nerves and stigma ferruginous; posterior margins tinged pale brown.

In the Cabinets of the British Museum and Mr. Stephens.

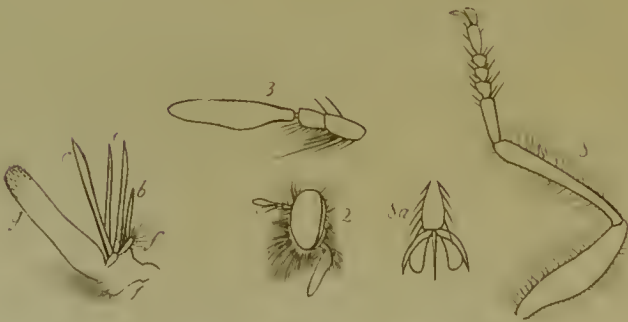
EXCEPT in the cabinets above recorded, I know of no British specimens of this valuable genus, of which Dr. Leach in the Zoological Miscellany mentions 2 species that were first described by Linnæus; and from our finding males only of the one and females of the other, it is exceedingly probable they are the same species, notwithstanding their dissimilarity, which would render the specific name of "*dispar*" more appropriate; the fact, however, of their being the same is not proved; and if it should hereafter, I would strongly recommend that the name which Linnæus gave to the male might be adopted, "*Amerinæ*" being descriptive of the locality of the insect; for we are informed by authors that it inhabits sallows, living in society, and eating the edges of the leaves of those trees.

Clavellaria Amerinæ Linn. has been twice taken at Windsor in June: a figure of it will be found in Panzer's *Faunæ Germanicæ*, fasc. 65, pl. 1. mas.

C. marginata Linn. is also figured by Panzer: the specimen represented in our plate was taken at Windsor also in June, by Mr. Griesbach.

The absence of the membranaceous covering as well as the slight emargination at the base of the abdomen, and the antennæ being composed of fewer joints and a longer club, are characters to distinguish *Clavellaria* from *Cimbex* and the neighbouring genera, no less than the organs of manducation; and the extraordinary length of the jaws in the males is not less characteristic. If then there be good characters to establish so many genera, (and that there are, no one can doubt, when it is recollected that Dr. Leach in the division of *Cimbex* employed only external distinctions,) the group with clavate antennæ, viz. the *Cimbices*, will form an excellent family; and the æconomy of the *Tenthredinidæ*, as well as their peculiar structure, may render it advisable in a more advanced stage of science to separate them from the *Hymenoptera* and form them into a new order, an idea which has long been entertained by various authors.

Pyrola media (Intermediate Winter-Green), from the heaths in the north of Perthshire, appears to be the plant figured.



LAPHRIA NIGRA.

ORDER Diptera. FAM. Asilidæ *Lat., Leach.*

Type of the Genus Laphria gilva Linn.

LAPHRIA *Fab., Lat., Meig.* Asilus *Linn.* Erax *Scop.*

Antennæ approximating, porrected, inserted near the middle of the face, scarcely longer than the head, 3-jointed, 1st joint short, 2nd shorter, 3rd long obovate, naked, slender at the base, considerably dilated in the middle (3).

Labrum short, somewhat membranaceous at the apex, attenuated (1 b).

Tongue very long, horny, acute, grooved beneath, hairy on the upper side excepting at the apex and base (c).

Mandibles none.

Maxillæ horny, nearly as long as the tongue, very acute dilated towards the base, ciliated internally (e).

Palpi short cylindric, hairy, 2-jointed (f).

Lip large, compressed, dilated towards the base, bilobed, with a small process arising between the lobes, very horny, hairy at the base and apex, hollow, open above, receiving the tongue and maxillæ (g).

Head transverse, as broad as the thorax, attached by a distinct neck.

Proboscis exerted. Clypeus slightly produced, bearded (2). Eyes distant in both sexes. Ocelli none? Thorax gibbous. Scutellum rounded. Abdomen rather long and cylindric, somewhat ovate in the females, terminal joint produced and inflexed in the males. Wings ineumbent with about 15 cells, 4 perfect cells upon the posterior margin, submarginal cell with a long pedicle at the apex, 1st marginal cell narrowed, extending only to the middle. Halteres naked. Feet robust long. Thighs incrassated in the males. Tibiæ, hinder arcuated unarmed. Tarsi 5-jointed, hairy, 1st joint the longest (8 a fore leg). Pulvilli and Claws 2, long and distinct, with a bristle arising from the centre at the base (8 a).

NIGRA *Meig. Syst. Bes. v. 2. p. 293. n. 11.*

Black, shining, hairy. Clypeus covered with yellowish silvery hair, whiskers yellowish, exterior margin of eyes silvery. Thorax with a slight tinge of blue, the sides and a short line on each side the anterior part gray. Abdomen with a cupreous tinge, pubescent with ferruginous hairs, incisures, especially on the sides, aureous with hairs. Wings stained brown, transparent at their base. Halteres ochraceous. Tibiæ aureous with pubescence.

In the Cabinets of Mr. Stephens and the Author.

It is singular we should possess only 1 species of this fine genus, of which there are 32 described by Meigen in his work upon European *Diptera*; there are indeed two specimens in the cabinet of the British Museum which may be distinct from *Laphria nigra*, as they are somewhat different, but it is very doubtful.

It has been before observed that the family *Asilidæ* embraces the genus *Asilus* of Linnæus, with which *Laphria gilva* (the type) was associated: it will however be evident on comparison with plate 46 that their structure is very different: we need here only notice the form of the antennæ and lip, and the articulate palpi.

Laphria nigra appears to be partial to nut-trees, upon the leaves of which I took a male in a very hot day in the month of June 1821, in Darent Wood, Kent, since which I have not met with it. In the neighbourhood of London it occasionally appears, and has been captured by Mr. Stephens at Darent, and at Coombe Wood by Mr. Westwood the middle of June: it is, however, by no means a common insect, and has never before been figured.

Sison Amomum (Bastard Stone Parsley) is figured in the plate.



Hydrophilus piceus L.

HYDATICUS CINEREUS.

ORDER Coleoptera.

FAM. Dyticidæ *Leach.* Hydrocanthari *Lat.**Type of the Genus Dytiscus transversalis Fab.*HYDATICUS *Leach, Sam.* Dytiscus *Linn., Fab., Oliv., Lat., Gyl., &c.*

Antennæ inserted close to the eyes at the base of the mandibles filiform, 11-jointed, 2nd joint not much shorter than the 3rd, 4th longer than the 3rd, the remainder nearly of equal length, somewhat clavate, excepting the terminal joint which is slightly curved and somewhat conical (fig. 6).

Labrum naked transverse, slightly emarginate (1).

Mandibles small, bent, broad and bifid at their extremity (2).

Maxillæ small, bent, very acute, ciliated internally. *Palpi*, internal slender, 2-jointed, 2nd joint the longer, curved; external 4-jointed, 1st joint minute, 2nd and 3rd slightly clavate, truncate, 4th large, slightly attenuated at the apex and truncated (3).

Mentum transverse, lobed on the sides and slightly produced in the middle. *Palpi* 3-jointed, attached to a cylindric scape, 1st joint short, 2nd and 3rd long, the latter somewhat conical. *Labium* large, rounded, ciliated (4).

Head rounded. Thorax transverse broad. Elytra convex ovate, smooth in both sexes. Wings 2. Scutellum distinct. Tibiæ all short. Tarsi 5-jointed, anterior patelliform and ciliated in the males (5); the middle pair with the 3 first joints dilated with suckers beneath (5*). Claws simple, of equal length. Posterior tarsi compressed, elongated, ciliated on both sides with very long fine hairs. Claws slightly hooked, one longer than the other.

CINEREUS *Linn. Faun. Suec. p. 215. n. 771. Gyll. Ins. Suec. v. 1. p. 474. n. 8. not of Fab. Ent. Syst., nor of Mars. Ent. Brit.*

Blackish, smooth, shining. Head ochraceous, black at the base with 2 oblique black lines between the eyes united behind. Thorax black, with an aureous ochraceous fascia across the middle uniting with the lateral margins of the same colour. Scutellum black. Elytra black, speckled with pellucid yellow, and a narrow line of the same colour down each side of the suture; external margin dull ochraceous: beneath ochraceous, ferruginous towards the apex. Antennæ and legs ochraceous, the former fuscous towards their extremity, the latter with the tibiæ and the tarsi of the 4 posterior chesnut-colour.

In the Cabinets of Mr. Chant and Mr. Bentley.

HYDATICUS is distinguished from *Dyticus* by the length of the 2nd joint of the antennæ, by the terminal joint of the palpi, and many other innumerable distinctions; from *Acilius* it is still further removed by the convexity of the abdomen and the dilated tarsi of the middle pair of legs, which certainly exhibit a nearer affinity to *Dyticus*; and from both it may be distinguished by the smooth elytra of both sexes.

Fabricius in his *Entomologia Systematica*, in describing *Dytiscus cinereus* evidently confounded it with the male of *D. sulcatus*, referring to Linnæus for the characters, and to Schæffer's figure of *D. sulcatus* to identify it, thereby giving rise to an error, which has been extended by Mr. Marsham in his *Entomologia Britannica*; and Olivier has unluckily assisted in the confusion by referring to two figures of his own, in his description of *D. cinereus*, one of which (tab. 4. fig. 32 b) is the female; but the other (fig. 32 a) is an *Acilius* with patelliform tarsi; although it is clear from his description that he was unacquainted with the male, for he there says the anterior tarsi are simple. Schœner however, in his invaluable Synonyms, has cleared up the point, and his friend Gyllenhal has confirmed his opinion in the *Insecta Suecica*: and as the *Acilii* have the entire margin of the thorax yellow, and Linnæus in his description of *D. cinereus* expressly says "*Thorax flavus, marginæ anteriore et posteriore (non lateribus) nigro*," there can be no doubt of our insect being the one described.

The scarcity of this species has contributed greatly to the confusion that has happened: upon the continent it is very rare, and in this country was unknown till Mr. Chant and Mr. Bentley took the sexes at Whittlesea Meer, the end of last July. We can now enumerate the following as British, of this rare and beautiful genus.

1. *Hydaticus cinereus* Linn., *Nobis*.
2. *transversalis* Fab., *Panz. fasc. 86. pl. 6. mas.*
m. July, near Yaxley, Huntingdonshire.
3. *stagnalis* Fab., *Panz. fasc. 91. pl. 7. fem.*
Ponds, Wiltshire.
4. *Hybneri* Fab., *Oliv. tab. 4. f. 33.*—*parapleurus* Marsham. m. July, Whittlesea Meer.

They all inhabit ponds and ditches, and are found in June and July.

The plant is *Ranunculus aquatilis* (Water Crowfoot).



VANESSA ANTIOPE.

The Camberwell Beauty.

ORDER Lepidoptera. FAM. Papilionidæ Lat., Leach.

Type of the Genus Papilio Atalanta Linn.

VANESSA Fab., Lat., Leach. Papilio Linn., Haw.

Antennæ inserted on the crown of the head, between the eyes, composed of about 40 joints covered with scales above, terminated by an ovoid, abrupt, short club, denuded at the apex (fig. 1. the club magnified).

Labrum attached to the clypeus, minute, triangular, elongate.

Mandibles attached to the clypeus, remote, parallel, ciliated.

Maxillæ long and spiral, with a small palpus of 2 joints near the base.

Labium triangular. *Palpi* contiguous, porrected obliquely, somewhat resembling a beak, 3-jointed, covered with scales and hair (4) : basal joint short, curved upward, 2nd long attenuated, 3rd as long as the 1st attenuated, very rigid at the apex (4 a).

Eyes densely pubescent, minutely reticulated (7, the head viewed beneath). *Wings* somewhat triangular and produced at the posterior margin, a groove on the abdominal margin to receive the body, more or less sinuated at the abdominal angle. *Feet* alike in both sexes; the anterior pair not formed for walking, very hairy, like a tippet (8). *Tibiæ* dilated towards their apex (8 b). *Tarsus* formed of a single compressed ovoid joint (c). The 4 posterior tarsi 5-jointed, terminated by Claws and Pulvilli with membranaceous pubescent bifid appendages at their base (8†).

Larvæ with each segment excepting the 1st armed with a whorl of spines. *Pupæ* suspended by the tail, angular, head bituberculated.

ANTIOPE Nob. Antiope Linn. Syst. Nat. 2.776.165. Haw. Lep. Brit. p. 27. n. 32.

Dull, reddish purple. *Wings* with a margin of very pale straw-colour, costa and 2 spots adjoining towards the apex of the same colour, the former variegated with black, an indented black band with 7 or 8 dull azure blue spots on each wing, next to the pale margin. Beneath dark brown striped with black, margins pale straw-colour.

In the Author's and other Cabinets.

THE genus *Vanessa* may be distinguished by its palpi and antennæ from *Argynnis* and *Melitæa*, as well as from *Apatura* and *Limenitis* : but the most decided differences are to be

found in the larvæ, which, although spined in common with the two former genera, have the neck or first segment free from spines, which is not the case in the *Fritillariæ*. The remarkable anterior feet, which are more beautifully formed in this genus than in any other, are not uncommon amongst the *Papilionidæ*; neither are the appendages to the posterior ones confined to this group; these appendages, which appear to belong to the pulvilli, (and probably supply the deficiency or want of claws in the anterior pair,) have erroneously been described by De Geer and other authors as double nails.

Our genus may be divided, 1st, into those with irregularly lobed wings, caterpillars gregarious with bituberculate heads.

1. *Vanessa C. album* Linn., Don. Brit. Ins. v. 6. pl. 199.

2ndly, with angulated wings, caterpillars gregarious.

2. *Urticæ* Linn., Don. Brit. Ins. v. 2. pl. 55.

3. *Polychloros* Linn., Don. Brit. Ins. v. 8. pl. 278.

4. *Antiopa* Linn., Don. Brit. Ins. v. 3. pl. 89.

5. *Io* Linn., Don. Brit. Ins. v. 6. pl. 206.

3rdly, with the inferior wings rounded and indented, caterpillars solitary.

6. *Atalanta* Linn., Don. Brit. Ins. v. 8. pl. 260.

7. *Cardui* Linn., Don. Brit. Ins. v. 9. pl. 292.

The fine species figured, which belongs to the most superb genus of British *Papilionidæ*, is rendered rare and remarkable in this country by its periodical appearance, the cause of which has hitherto never been ascertained: the most probable conjecture is (as Mr. Haworth has observed) that "their eggs in this climate, like the seeds of some vegetables, may occasionally lie dormant for several seasons, and not hatch, until some extraordinary but undiscovered coincidences awake them into active life." Until four or five years since *V. Antiopa* had not been seen for nearly forty years, when it was exceedingly abundant in different parts of the kingdom. In the year 1819 a few were taken in Suffolk, and Mr. Samouelle captured one the following spring that had lived through the winter, since which period it has not been seen. It has received its English name from having been first observed at Camberwell, whither it might have been attracted by willows, upon which the larvæ feed, and are full grown the beginning of July; the butterfly is found the beginning of August; it frequents woods, and is strong and rapid in flight.

V. Atalanta in its perfect state is sometimes very destructive to fruit, particularly cherries, extracting the juice from those that are ripe, probably taking advantage of previous injuries occasioned by birds, wasps and flies.

The caterpillar, which is copied from Hübner, is drawn upon a piece of *Salix Forbyana* (Basket Osier).



ZARÆA FASCIATA.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo fasciata Linn.

ZARÆA *Leach.* *Cimbex* *Fab., Oliv., Lat.* *Tenthredo* *Linn., Jur., Panz.*

Antennæ inserted near the interior margin of the eyes, short clavate, slightly pubescent, 6-jointed, 1st and 2nd joints transverse, slightly hairy, 3rd long, slender, bent, clavate, the remainder of nearly equal length, 5th and 6th forming the club, the latter somewhat ovate (fig. 1).

Labrum exerted, semicircular, covered above with rigid hairs (2).

Mandibles small, bent, very acute, with an obtuse tooth on the internal edge, very hairy externally (3).

Maxillæ long, lobes membranaceous, terminal one naked, rounded, the other large, attenuated, acute. *Palpi* long, hairy, 6-jointed, coriaceous at the base, terminal joints membranaceous, two 1st joints small, 3rd robust, 4th long, bent, or twisted, 5th very long, 6th nearly as long (4).

Mentum somewhat quadrate, deeply emarginate, hairy (5 a).

Palpi hairy, 4-jointed, 2 basal joints short, 3rd and 4th membranaceous compressed, dilated, the former very large (b). *Lip* composed of 3 nearly equal hollow lobes (c).

Head small. *Eyes of the males contingent behind. Ocelli 3, placed before the eyes, especially in the males. Abdomen sessile, cylindric, ovate in the females. Oviduct not exerted, composed of 2 lamellæ which are serrated. Superior wings with 2 marginal and 3 sub-marginal cells. Legs slender. Tibiæ with obtuse siphon-formed spurs. Tarsi with the joints gradually decreasing in length to the last, 5-jointed, 4 first joints with membranaceous appendages.*

Claws simple. Pulvilli distinct (8 a fore leg).

Larvæ with membranaceous feet.

FASCIATA *Linn. Faun. Suec. 1538. Fab. Ent. Syst. t. 2. p. 107. n. 9.*

Female æneous-black, shining, pubescent, minutely punctured. *Antennæ* dull black: 1st joint of abdomen semitransparent, whitish with an interrupted black line at the base. *Wings* iridescent, tinged with fuscous towards their extremities, the superior with a large brown spot in the centre. *Tibiæ* brown, *tarsi* dull ochraceous. *Abdomen* beneath whitish in the middle, at the base. "Male bronzed, the 1st segment of the abdomen not white as in the female." *Jurine.*

In the Cabinet of Mr. Stephens.

ALTHOUGH the more rounded labrum and acute mandibles, as well as the form of the 4th joint of the maxillary palpi and the great breadth of the 3rd joint of the labial palpi, are important differences to distinguish our genus from *Abia*; a more obvious character is to be found in the antennæ, each of which is composed of 6 joints only, the club being formed by 2 instead of 3 articulations.

At present there is no other species of this genus described: the one figured is rare in this country, and I have had no opportunity of examining a male. The females have been taken by J. F. Stephens, Esq. in Coombe Wood in May; from which we may infer that the males are more scarce (an opinion that is corroborated by the females being constantly figured, and the specimens I have received from Germany for dissection being all of that sex), a circumstance that is somewhat singular, because in *Abia*, to which it is so closely allied, the males are by far the more common sex.

The plant figured is *Adoxa Moschatellina* (Tuberous Moschatel).



Calceolaria

MERODON CLAVIPES.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.*

Type of the Genus Merodon spinipes Fab.

MERODON *Fab., Lat., Meig.* Syrphus *Fab., Panz.* Eristalis *Fab., Lat.* Milesia *Fab., Lat.*

Antennæ short, nutant, contiguous, inserted near the top of the face, pubescent, 3-jointed, 1st joint somewhat cup-shaped, pilose at the extremity, 2nd very pilose dilated internally, truncated obliquely, 3rd large ovate, with a 3-jointed naked seta inserted above near the base, 2 first joints minute, 3rd long, slender, subulate (fig. 3).

Labrum short, horny, robust, divided at the apex into a spine, 2 lobes and 2 intermediate minute spines (1 b).

Tongue nearly as long as the labrum, hollow subulate, very acute (c).

Mandibles none.

Maxillæ short, broad, rounded (e). *Palpi* exarticulate, hairy towards their extremity (f).

Lip retractile, fleshy, dilated, short, pilose, terminated by 2 large lobes (g).

Proboscis short vertical. *Head* vertical (2), broad, short, obtuse.

Hypostoma not projecting, villose. *Eyes* converging above in the males, with a space behind on which are placed 3 Ocelli, distant in the females. *Thorax* somewhat globose. *Scutellum* broad, scarcely emarginate. *Abdomen* cylindric, somewhat attenuated in the males, ovate in the females. *Wings* rather short, incumbent, parallel, containing about 11 cells, 4 or 5 being costal, and 5 discoidal, the nerve dividing the external discoidal cell from the terminal costal one being very much sinuated (9). *Halteres* small, concealed. *Legs* rather short. *Posterior thighs* very much incrassated, truncated, with a serrated tooth at the inferior angle. *Posterior tibiæ* bent, slightly angulated towards their base. *Tarsi* 5-jointed, basal joint the longest, especially in the posterior pair, 2 following joints small, 4th bilobed, 5th trigonate. *Claws* small. *Pulvilli* distinct (8† a hind leg).

CLAVIPES *Fab. Ent. Syst. t. 4. p. 292. n. 50. Meig. Syst. Besch. t. 3. p. 351. n. 1.*

Male: Blueish black, shining, pubescent. *Eyes* dull cupreous, pubescent. *Hypostoma* covered with long aureous hairs, anterior half of the thorax and scutellum covered with ochraceous hairs leaving a transverse black band in the middle, base of abdomen and incisures blackish, 1st joint covered with yellowish hair, the terminal joints completely covered with aureous pubescence. *Halteres* minute, fuscous. *Wings* fuscous, ferruginous at the base. *Antennæ*, *tibiæ* and *tarsi* cinereous, pubescent. *Claws* and *pulvilli* orange, the former tipped with black. "*Female*: Thorax rufous, tomentose, abdomen black, base and incisures aureous tomentose." *Meig.*

In the Cabinet of the British Museum.

MERODON may be distinguished from the extensive genus *Syrphus* by the regular form of the profile and the sinuated nerve in the wings; from *Tropidia* Meig., which it most resembles, both in its dentated thighs and the lobed cell of the wings, it is separated principally by the form of the 3rd joint of the antennæ; the elypeus is more produced in that genus, and the species are not so woolly as in *Merodon*: the same differences, as well as the simple legs of the *Helophili*, at once separate it from that genus; and the plumose antennæ of *Eristalis* render it difficult to confound it with them.

The genus *Merodon* must be far from common in this country, since we have only discovered one species at present out of 27 described by Meigen; and only 2 specimens of that, both of which are males, taken by Dr. Leach in Spitchwick park, Devon. Never having seen the other sex, I have been compelled to transcribe Meigen's description of it. The few indigenous Liliaceous plants we have in this country may be the cause of our not having at present detected any more specimens, for it is well known that our genus is attached to the *Narcissi*, from which cause one has received its specific name; and Reaumur (v. 4. p. 572.) has given figures of the larvæ, &c. of a species that feeds upon the roots of those plants. It would therefore be worth while to examine meadows where the *Narcissi* grow spontaneously, when they are in flower; for if one of the flies were found in the neighbourhood, there would be good reason to suppose they were bred there: and in November the bulbs ought to be examined for the larvæ, which in all probability are easily reared; and additional information respecting the œconomy of a genus whose habits are so peculiar, would be highly interesting to the Entomologist, and probably beneficial to the Florist.

The specimen of *Narcissus*, *Pseudo narcissus* (Common daffodil), I received from Professor Henslow, who gathered it the beginning of April near Cambridge; Mr. Dale also showed me numerous specimens soon after, growing at Glanville's Wootton, that were evidently wild.

